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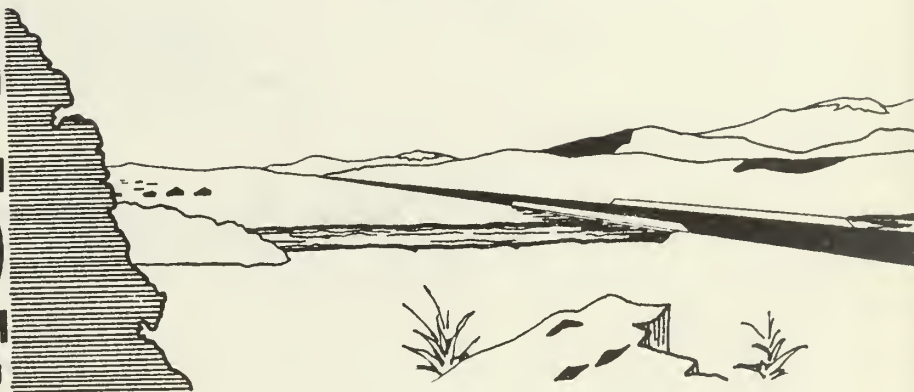
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**PRELIMINARY
DRAFT** ←

**GREAT FALLS SOUTH ARTERIAL
PROJECT M5212(1)
GREAT FALLS, MONTANA**

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Helena, Montana 59601

**FINAL
ENVIRONMENTAL
IMPACT / 4(f)
STATEMENT**



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
MONTANA DEPARTMENT OF HIGHWAYS
IN COOPERATION WITH
DEPARTMENT OF THE ARMY
OMAHA DISTRICT CORPS OF ENGINEERS

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GREAT FALLS SOUTH ARTERIAL
PROJECT M 5212(1)
GREAT FALLS, MONTANA

FINAL ENVIRONMENTAL IMPACT/4(f) STATEMENT

U.S. Department of Transportation
Federal Highway Administration
and
Montana Department of Highways

in cooperation with
Department of the Army
Omaha District Corps of Engineers

This action complies with Executive Order 11988, Flood Plain Management, and Executive Order 11990, Protection of Wetlands.

Date

for MDOH

Date

for FHWA



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ABSTRACT

The Update of the Urban Transportation Plan for Great Falls and the Great Falls Area Comprehensive Plan indicate that an expanded highway system will be required to handle the east/west traffic in the southern part of Great Falls. The alternatives of no action, expanded mass transit, upgrading existing streets, and the south arterial are reviewed in this Final EIS. Construction of the south arterial is the preferred alternative. The preferred alignment is discussed in this document.

The "no action" alternative would eliminate construction costs and impacts on the environment, however, it would not decrease traffic congestion or certain social costs. The "mass transit" alternative would have the lowest environmental impact, but would be difficult to implement due to cultural factors and spatial relationships. "Upgrading existing streets" would have minimal impacts on the biophysical environment, but would not provide a transportation system to handle long term traffic needs. The south arterial would decrease congestion on existing streets, provide transportation for the growing south Great Falls area, and provide a route for through traffic. However, it would have the greatest impact on the rural environment. All proposed routes for the south arterial would cross the Lewis & Clark Portage, a National Landmark; impact wetlands; and cross designated flood plains.

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The Update of the Urban Transportation Plan for Great Falls and the Great Falls Area Comprehensive Plan indicate that an expanded highway system will be required to handle the east/west traffic in the southern part of Great Falls. The alternatives of no action, expanded mass transit, upgrading existing streets, and the south arterial are reviewed in this Final EIS. Construction of the south arterial is the preferred alternative. The preferred alignment is discussed in this document.

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SUMMARY

Purpose and Need

The Great Falls Transportation Plan has identified a need for transportation system improvements which will:

- answer the logical need for a transportation arterial within the South Great Falls area;
- alleviate traffic congestion on 10th Avenue South; and
- provide an alternative route to 10th Avenue South for through traffic to bypass Great Falls.

Early definition of a south arterial route will enhance planning for orderly growth of the South Great Falls area. The existing 10th Avenue South facility will not be able to handle the projected increased traffic loads in the year 2000 even if substantial upgrading is implemented.

The Proposed Action

The project area is directly south of Great Falls, Montana in Cascade County which is located in the north central area of the state. The proposed action is the construction of an arterial roadway with access control to be located south of 10th Avenue South. It would extend from the Gore Hill Interchange of Interstate 15 to the intersection of 10th Avenue South and 57th Street, seven and one half miles to the east.

The south arterial would be built in stages with only two lanes and at-grade intersections planned for construction prior to the year 2000 due to anticipated funding restrictions. This should provide adequate system capacity to the year 2000. Adequate right-of-way would be acquired initially to provide for the future upgrading of the facility to four lanes with the possibility of full access control. The preferred project alignment is approximately 8.85 miles in length. Major intermediate features include two railroad crossings, the Missouri River crossing, and the descent of the Sun River Bench. The preferred south arterial alignment is identified as Alternative 5-D in this final EIS.

The Army Corps of Engineers, the Montana Department of Health and Environmental Sciences (DHES), and the Montana Historic Preservation Office have advised that permits required for project implementation are:

- Corps of Engineers 404 permit for the placement of fill material, including cast-in-place concrete, within the Missouri River and for any fill material placed in wetlands;

- DHES Section 6(g) Authorization allowing temporary increase in water turbidity;
- DHES wastewater discharge permit; and
- Historic Preservation Act, Section 106 clearance.

Alternatives Considered

Several alternatives were proposed and considered in relation to their ability to meet the identified transportation needs. Most were downgraded as reasonable alternatives after studies revealed they did not answer all of the recognized needs. The major alternatives included:

- Upgrade 10th Avenue South;
- Conversion of 10th Avenue South to a one-way system;
- Implementation of a high level of mass transit;
- Carpooling and voluntary travel reductions;
- Several alternative south arterial alignments consisting of four lane facilities with full access control;
- Three reduced facility alternatives; and
- No action.

Significant Impacts

Significant adverse impacts of the preferred alternative identified during the environmental assessment include:

- Visual and audible impacts of introducing an arterial highway into the suburban environment;
- The crossing of the Lewis and Clark Portage route (a National Historic Landmark);
- Impact to two wetlands areas; and
- Necessary residential and commercial relocations.

Significant beneficial impacts include:

- Early designation of a facility corridor;
- Enhancing area planning programs;
- Improved access to the south Great Falls urban area;
- Decreased 10th Avenue South congestion;
- Improved air quality on 10th Avenue South; and
- Provision of a facility for through traffic wishing to bypass the city.

Impacts to the Central Business District and to 10th Avenue South businesses are not expected to be significant. Control of access on the south arterial will prevent it from becoming another 10th Avenue South. Commercial and industrial development will also be controlled by zoning and subdivision regulations. Residential development is expected to continue in the south Great Falls area with or without the proposed action, although the rate of growth may increase if a south arterial is implemented. Energy conservation will be promoted through improved accessibility and reduced travel time and delay.

There are no practicable alternatives to the proposed action to avoid construction in wetlands, crossing the Missouri River floodplain, or crossing the Lewis and Clark Portage route.

Two other major projects are planned for construction in the area. These are the construction of an additional two lane bridge across the Missouri River parallel to the Warden Bridge and the construction of a new interchange on I-315 at 14th Street SW. It is not expected that these projects will have any significant influence on the extent of impacts of the proposed action.

Areas of Controversy

Areas of Controversy identified in the course of this study include public opposition regarding the need for the proposed action, resident objections to a major roadway bisecting the area, objections by those facing relocation, impacts to park and school lands, the Lewis and Clark Portage impact, impacts to wetland areas, impacts to the viability of the central business district and 10th Avenue South businesses, and project funding impacts.

The need for the proposed action has been reassessed and reaffirmed by City, State and Metropolitan Planning Organization (MPO) officials prior to preparation of this final EIS. The preferred alternative will avoid impacts to park and school lands. Impacts to the viability of the central business district and 10th Avenue South businesses are not felt to be significant. Due to funding limitations, it is anticipated that only two lanes of the south arterial will be constructed by the year 2000. Other unavoidable impacts will be mitigated to the extent practicable as discussed in this document. It is believed that the transportation needs of the area outweigh the adverse social and environmental effects of the proposed action.

Future Reevaluations

Since portions of the south arterial will not be built for several years, this final EIS shall be reevaluated by the Montana Department of Highways in consultation with the Federal Highway Administration prior to proceeding with major project approvals or authorizations for the purpose of determining whether there has been a substantial change in the social, economic, or environmental effects of the proposed action.

CHAPTER 1 - PURPOSE AND NEED

CHAPTER 1 - PURPOSE AND NEED

Great Falls is an urban area of approximately 80,000 people in the northwestern portion of Montana's Great Plains. It is a trade and service center for an area of roughly 25,000 square miles serving a regional population of approximately 200,000 people. Its general location is shown on Figure 1-1.

The transportation system serving Great Falls includes an international airport with scheduled passenger service, transcontinental bus lines, railroads, and federal and state highways. There are 16 air and 20 bus arrivals and departures daily. While there is no passenger rail service the Burlington Northern Railroad provides freight hauling. Highways (Figure 1-2) passing through Great Falls include I-15, a north-south branch of the Interstate system, U.S. Highways 87 and 89, and several state highways.

The term "south arterial" indicates this study is concerned with the transportation needs in and around the southern portion of Great Falls. The specific area is south of the central business district and between Great Falls International Airport on the west and Malmstrom Air Force Base on the east, as shown on Figure 1-3.

NEED

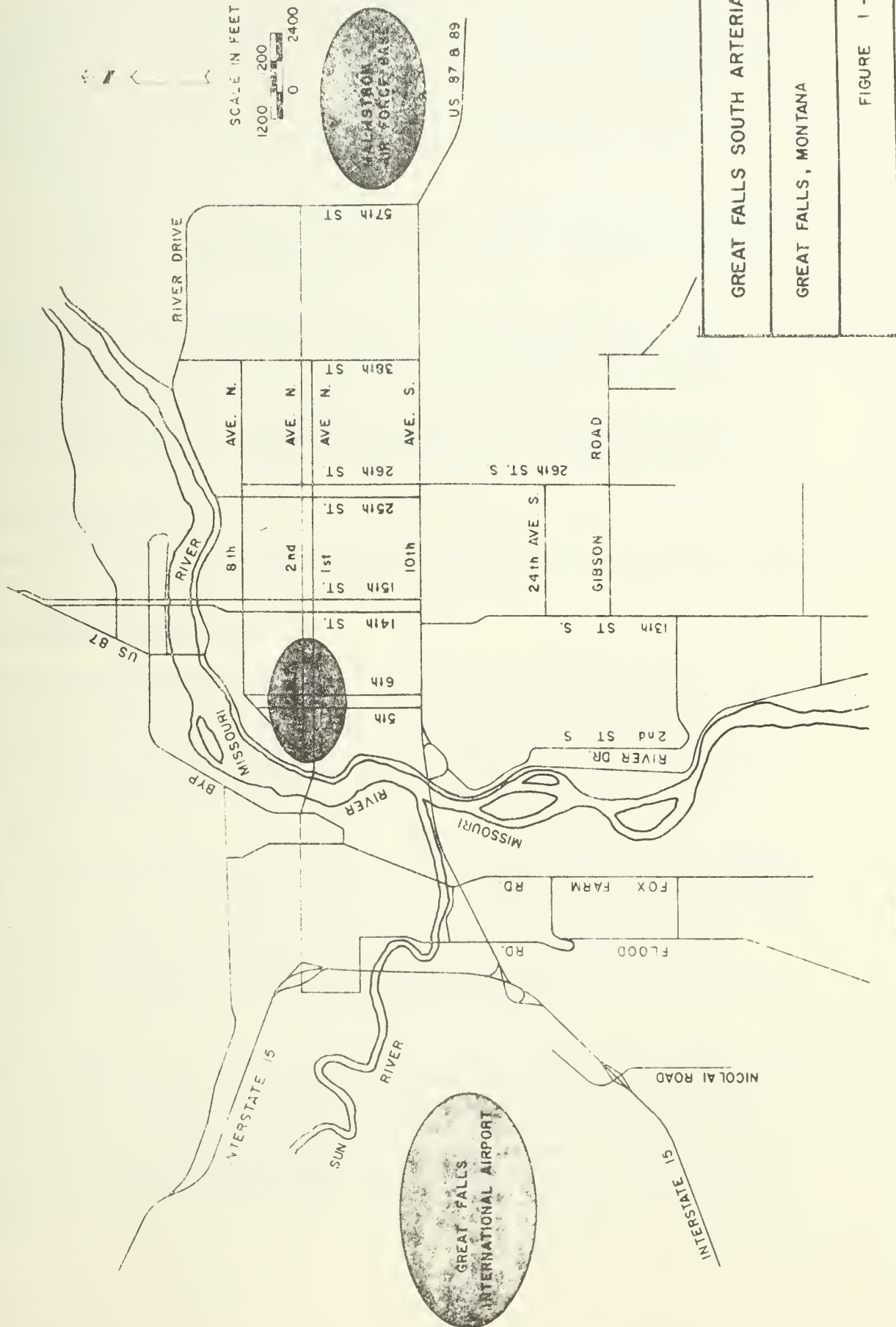
The need for a "south arterial" was determined through the transportation planning process in Great Falls. Transportation planning has been established as a continuing process in Great Falls through the cooperative efforts of the City, Cascade County, the Montana Department of Highways, and the Federal Highway Administration.

The first major transportation plan for the Great Falls urban area was developed in 1961 based upon comprehensive travel data and inventories. A gravity model was used to simulate the actual distribution of traffic.

In 1968, the transportation plan was updated using population and other socioeconomic considerations for the update year and using updated origin and destination survey inventory data. Traffic projections were made to 1990 and several alternate street networks were evaluated. The network analysis concluded that a south bypass would be needed to relieve congestion on 10th Avenue South and to provide satisfactory levels of service for the recommended major street network.

The transportation plan was again re-evaluated in 1979 due to changes in community attitudes, growth rates, energy availability and the economy. The gravity model was tested and calibrated using updated input data and traffic projections were developed to the year 2000. Alternate street networks were evaluated using the urban transportation planning goals and objectives adopted in February 1977 by the Policy Coordinating Committee of the Great Falls Urban Transportation Planning Process. This network analysis reaffirmed the need for a south arterial.

GREAT FALLS - MONTANA



GREAT FALLS SOUTH ARTERIAL

GREAT FALLS, MONTANA

FIGURE 1-3

The year 2000 recommended major street network includes the south arterial as a major component. Analyses conducted in the 1979 Plan update indicate the recommended network will improve overall accessibility, increase overall traffic level of service, and reduce travel time and delay as well as reduce total vehicle-miles of travel. The recommended network will therefore result in less energy consumption than the existing plus committed street network. The rationale for the proposed project has been modified and refined since the need was first determined in the "Great Falls Transportation Plan, 1968 Update", but can be summarized as:

- Need to provide an arterial route to improve access for existing and future development in the south Great Falls urban area;
- Need for a reduction in the congestion on 10th Avenue South; and
- Need for an alternative route for through traffic.

Integral to the orderly growth of the Great Falls urban area is the need to plan for transportation systems prior to the development of an area. Although initial construction of the south arterial may not be effected until the early 1990's, the delineation of right-of-way will assist local planners, developers, and residents in planning their future activities. The early acquisition of right-of-way minimizes the impact to residential and commercial properties which could arise in the intervening years.

SUPPORTIVE INFORMATION

Information from several sources supports the need for an expanded highway system in the south Great Falls urban area.

Socio-Economic Projections

Socioeconomic projections prepared by the Great Falls City-County Planning Board in 1976 substantiate a need for the south arterial by virtue of projections of increased population and numbers of dwelling units, automobiles, and area employees. All of these factors will impact the existing transportation system and can be seen as indicators of a need for a new system element to improve traffic flows and area accessibility.

The population projections prepared in 1976 were developed based upon a 1 percent annual population growth rate for the Great Falls area to the year 2000. However, the preliminary Bureau of Census population data for the Great Falls area show a population decrease between 1970 and 1980 for the City of Great Falls as a whole. Consequently, in October 1980, the City-County Planning Board staff, with assistance from the Montana Department of Highways, Planning and Research Bureau staff, conducted a review and reassessment of the projections prepared in 1976.

A closer analysis of the preliminary 1980 census figures shows that, while the City of Great Falls as a whole experienced a population decrease between 1970 and 1980, the south and southwest Great Falls urban areas, which will be served by the south arterial, experienced remarkable percentage increases in population during this period. The three census tracts south of 10th Avenue South, being Census Tracts 13, 14, and 15, showed 22.5 percent, 10.3 percent, and 97.2 percent population increases respectively.

Following the Planning Board staff review, the Technical Advisory Committee and the Policy Coordinating Committee reaffirmed that the population projections prepared in 1976 were reasonably valid, particularly for the south and southwest Great Falls areas.

Residential development trends for the future point toward the continual development of the southern Great Falls area, particularly west of the river. This is based primarily upon existing development trends, availability of vacant land in the area, availability of public utilities, and contiguity with the City limits for annexation to the City. The southwest area of the City provides greater potential for development than any other sections of the City. With the expectation of continued development in the southern Great Falls area, it is a reasonable planning goal to lay out future arterial streets early. This will avoid more severe impacts to the area which would occur if necessary transportation facilities are not defined until after further development has occurred.

Traffic Projections

The Montana Department of Highways, Planning and Research Bureau, has developed a computer model of the Great Falls street network using origin and destination studies conducted for the 1968 Transportation Plan and updated socioeconomic projections prepared in 1976. Year 2000 traffic projections indicate that without a new southern route, 10th Avenue South would be carrying up to 44,690 vehicles per day, 50.2 percent more than in 1978. With a south arterial, traffic volumes on 10th Avenue South would be maintained at about current levels. Traffic projections are presented on Figures 2-5 and 2-7.

As part of the Great Falls City-County Planning Board staff review of population projections discussed above, a review of the validity of the traffic projections was also conducted. While the accuracy of the projections may vary somewhat from one roadway section to another, the Technical Advisory Committee and the Policy Coordinating Committee concluded that, overall, the projections appear to be reasonable. These projections substantiate the need for a south arterial facility as recommended in the Great Falls Transportation Plan. It is felt, however, that a two lane facility will provide adequate system capacity to the year 2000.

Conditions Along 10th Avenue South

Existing and projected conditions along 10th Avenue South indicate that immediate transportation system improvements are warranted. These conditions support the need for a south arterial to relieve congestion, provide improved system safety and accessibility, and to help control further degradation of air quality along 10th Avenue South.

The "Great Falls, Montana, Tenth Avenue South Improvement Plan, 1979", contains substantial relevant data which is referenced in this report. The 10th Avenue South report concludes, "Considering the deteriorated state of the existing pavement and the near-capacity traffic flow on 10th Avenue South, combined with the fact that a six-lane facility would be able to adequately handle traffic to the year 2000, it is our conclusion that improving 10th Avenue South to a six-lane facility is of more immediate benefit than the south arterial. Of course, right-of-way and construction plans for the south arterial should proceed since it would be required after the year 2000 even if 10th Avenue South is expanded to a six-lane facility".

Accidents on 10th Avenue South. During 1976 and 1977 there were 1,065 accidents on 10th Avenue South, including one fatality and 97 injuries. The accident rate for the western half of the road (Warden Bridge to 28th Street South) was over four times that for the eastern half - 19 accidents per million vehicle miles as opposed to 4 accidents per million vehicle miles. This appears to be due to a combination of higher traffic volumes, inadequate pavement, median traffic lighting structures, more driveway approaches, and more traffic signals. Intersections with traffic signals accounted for eleven of the twelve high accident rate locations.

10th Avenue South Congestion. The south arterial was originally proposed to relieve congestion on 10th Avenue South. This four-lane arterial consists of a 16-foot median with left turn bays, four 11-foot driving lanes and two 10-foot emergency parking lanes for a total roadway width of 80 feet. The lack of access control on this route has resulted in numerous access connections from both north-south intersecting streets and from the strip commercial development along the roadway corridor. There are 13 signalized intersections between 2nd Street South and 49th Street South.

The average travel speed and stopped time for driving the section of 10th Avenue South between Warden Bridge and 57th Street are shown in Table 1-1.

Table 1-1
AVERAGE TRAVEL SPEEDS AND STOPPED TIME FROM
WARDEN BRIDGE TO 57TH STREET

Direction of Travel	Average Running Speed (MPH)	Average Travel Speed (MPH)	Average Stopped Time (Sec.)
Eastbound			
Peak.....	29.7	26.0	75
Off-Peak.....	32.6	30.0	29
Westbound			
Peak.....	29.3	25.8	69
Off-Peak.....	31.9	29.3	44

Source: 10th Avenue South Improvement Plan, 1979

10th Avenue South has a variable traffic capacity of between 1250 and 1750 vehicles per hour in each direction. The capacity is controlled by intersection geometry, vehicle turning movements, pavement width, signalization, and access to abutting property. The westbound traffic lanes operate at very near maximum capacity while the eastbound lanes occasionally exceed capacity. Under present conditions, 10th Avenue South operates at Level of Service D to E for most of its length, indicating that traffic flow is unstable during peak hour periods. The present facility does not have capacity to handle projected year 2000 traffic volumes. Even with six lanes, 10th Avenue South would operate at Level of Service D to E in the year 2000 if the south arterial is not built.

If the south arterial is built, year 2000 traffic volumes would be maintained at about current levels on 10th Avenue South, and the street would function at about the same level of efficiency that it does at the present time. The south arterial would generally be designed to provide Level of Service C, or stable flow conditions. However, implementation of the proposed action, whereby only two lanes of the south arterial would be completed by the year 2000 due to funding restrictions, can be expected to result in a lower level of service between Fox Farm Road and 26th Street South.

Condition of Existing Facilities. Two serious inadequacies plague 10th Avenue South. The deteriorated pavement condition of the west section of the avenue and the Warden Bridge bottleneck constrict traffic movement. Both conditions are recognized and have been addressed in future traffic planning.

The Warden Bridge is tentatively scheduled for expansion to four lanes in 1981. The "10th Avenue South Improvement Plan, 1979", suggesting paving and widening of 10th Avenue South, includes the following recommendations:

- The pavement from Warden Bridge to 17th Street South will require complete replacement;
- The pavement from 17th Street South to 28th Street South is inadequate, but partly salvageable; and
- The pavement from 28th Street South to 57th Street may be useable for five to ten more years.

Air Quality. Under existing conditions, the 10th Avenue South area is not complying with the federal or state air quality standards for carbon monoxide. For the 12 months ending June, 1978, the federal 8-hour standard for carbon monoxide was violated 14 times. Carbon monoxide levels in this area generally correlate with traffic volumes. As traffic volumes increase along 10th Avenue South, it can be expected that more frequent violations of the air quality standards will occur. Transferring some of the traffic load from 10th Avenue South to the south arterial will help to control carbon monoxide levels along 10th Avenue South.

The President's Urban Policy. The Great Falls Urban Transportation Plan is a dynamic process which attempts to keep the transportation information current and future needs addressed. The Great Falls City-County Planning Department conducts periodic assessments of the Transportation Plan utilizing traffic data, accident data, socioeconomic indicators, land use changes, environmental and financial factors to determine deficiencies in the plan.

In accordance with the President's Memorandum of August 2, 1979, the transportation plan endeavors to enhance environmental protection, induce energy conservation, and encourage urban revitalization in the long term. This often requires the short-term commitment of resources.

The proposed South Arterial would promote energy conservation in the long-term by reducing vehicle miles travelled. The arterial will result in beneficial environmental impacts in the long term at the expense of short-term adverse impacts. Urban revitalization is promoted due to relief of traffic congestion and improved accessibility. Adverse long-term impacts will primarily derive from changes in land use; more rapid development of presently undeveloped areas and expansion of already developed areas.

SYSTEM LINKAGE

The Missouri River separates east and west Great Falls. Presently the most southerly of the four river crossings is the Warden Bridge on 10th Avenue South. An arterial within the corridor under study would provide an east-west link for the north-south arterial streets south of 10th Avenue South and would provide an alternative to 10th Avenue South for those people who wish to travel across the south side of the city.

The south arterial would be designed as a controlled access facility. The transfer of traffic from 10th Avenue South to the south arterial would result in a reduction of travel time and delay for motorists with corresponding reduction in energy consumed per vehicle mile traveled.

A common transportation system planning "rule of thumb" is to space arterial routes at approximately one mile intervals. Existing development south of 10th Avenue South and the expense incurred in crossing the Missouri River make this "rule of thumb" standard impractical for the proposed project. However, this exemplifies the need for an east-west arterial route south of 10th Avenue South.

LINKAGE WITH OTHER MODES OF TRANSPORTATION

The construction of the south arterial would facilitate access to the Great Falls International Airport. The south arterial would also provide an uncongested link between Malmstrom Air Force Base and the commercial airport.

CHAPTER 2 - ALTERNATIVES

CHAPTER 2 - ALTERNATIVES

INTRODUCTION

This Chapter discusses the selection process used in arriving at reasonable alternatives which would best meet the transportation needs presented in the previous section. The preferred alternative and the rationale for its selection are also presented in detail.

This statement was prepared using an interactive process - the alternatives were modified, the depth of supportive investigations changed, and the detail to which the more reasonable alternatives were studied varied as the investigation proceeded and comments were received from the public and other agencies. Time consuming and/or expensive studies such as noise and air quality impact calculations and energy use calculations were only done for the alternatives that the interactive planning/EIS process indicated would be reasonable.

The development of this study was coordinated with the transportation and land use planning efforts of the Great Falls City-County Planning Department, which serves as the metropolitan planning organization (MPO) for the Great Falls area. The proposed action was a major consideration in the development of the Great Falls Comprehensive Plan.

All of the reasonable alternatives were presented at a public hearing held May 1, 1980. The preferred alternative was selected only after careful review and evaluation of the public hearing transcript and draft EIS comments.

SELECTION OF REASONABLE ALTERNATIVES

The evaluation of alternatives for consideration began with the definition of a need for transportation system improvements as first identified in the 1968 Great Falls Transportation Plan Update. Any and all alternatives considered were proposed as solutions to meet the perceived transportation needs of the south Great Falls area.

The alternatives can be generally described as alternatives to a south arterial, alternatives for a south arterial facility, and the consequences of no action. The evaluation of an alternative was based primarily upon its ability to meet the transportation needs. Those alternates meeting this criteria were further evaluated on the basis of environmental, physical, cultural, and land use planning considerations to determine those which are reasonable.

The first step of this planning study was to review previous studies and alternatives considered to date. Available baseline engineering and environmental data were collected and initial study alignment proposals for a south arterial were developed. On March 22, 1979, these initial alignment proposals were circulated to affected agencies for comment. They were also presented at a public information/scoping meeting in Great Falls on April 5, 1979.

Public input suggested that additional route concepts be considered. Additional study alignments were developed based on the comments received. The array of alternatives to a south arterial was also expanded and considered. Those alternatives which appeared reasonable were then studied in greater detail. All of the alternatives were presented at a second public information/scoping meeting in Great Falls on August 21, 1979. Comments received were considered in the further refinement and evaluation of the reasonable alternatives. Following the distribution of the draft EIS, a public hearing was held in Great Falls on May 1, 1980. The comments received on the draft EIS and the public hearing transcript were then considered in the final selection of the preferred alternative. All alternatives considered to date are discussed below. A matrix summary of the alternatives is presented following the discussion.

Alternatives to South Arterial

Upgrade 10th Avenue South. This alternative would involve the upgrading of 10th Avenue South east of the Warden Bridge from its present four lanes to six lanes. The upgrading of 10th Avenue South was recommended in both the 1968 Great Falls Transportation Plan Update and the 10th Avenue South Improvement Plan, 1979. However, both studies also recommended that planning continue for the South Arterial.

This alternative would temporarily reduce congestion on 10th Avenue South and therefore reduce the need for through traffic to be able to bypass 10th Avenue South. However, the need for an alternative route to 10th Avenue South for through traffic to be able to bypass Great Falls is minor in comparison to the other transportation needs. The upgrading of 10th Avenue South will not satisfy the primary need to provide an arterial route for existing and future development in the south and southwest Great Falls area. As discussed in Chapter 1, this area experienced a dramatic growth rate during the period from 1970-1980. In relationship to other areas of the City which are experiencing residential growth, residential development in the southwest area was about three times greater than any other section of the City. This area also provides greater potential for future development due to the availability of vacant land and public utilities and its contiguity with the City limits.

While upgrading 10th Avenue South to six lanes would reduce congestion on this route now, traffic volumes would again be approaching the capacity of this roadway by the year 2000 if the south arterial is not built. Under existing conditions the 10th Avenue South area is not complying with the federal or state air quality standards for carbon monoxide. As traffic volumes increase, more frequent violations of the standards can be expected to occur. The increased traffic and accompanying congestion would also have serious negative impacts on businesses along 10th Avenue South as accessibility would be reduced. Slower travel speeds and increased delay would result in increased energy consumption.

The upgrading of 10th Avenue South will not meet the long range transportation needs of Great Falls. It can only be considered as a

temporary, or short term, alternative to a south arterial. Also it would not assist in long term land use planning for the south Great Falls urban area as a right-of-way for a south arterial would not be determined or acquired.

The upgrading of 10th Avenue South would be an effective action to complement a south arterial alternative as it would temporarily reduce congestion on this route to permit phased construction of a south arterial.

Conversion of 10th Avenue South to a One-Way System. This alternative would involve the development of a one-way couplet utilizing 10th Avenue South and a parallel route to the north or south. To be effective here, the streets of a couplet should be no more than one block apart. This alternative would be difficult to implement because of the difficulty in obtaining right-of-way for the complimentary one-way street. A parallel road to the south would involve going through or around a hospital, a college, a major shopping center, and developed residential areas. A north parallel route would go through a heavily developed residential area, including two parks.

This alternative meets only one of the transportation needs, that of easing congestion on 10th Avenue South. It also would not meet the secondary need to plan for transportation systems prior to development in the area south of 10th Avenue South.

Implementation of a High Level of Mass Transit. Great Falls is currently in the process of implementing a mass transit system. An analysis was conducted by the City-County Planning Board to determine the percentage reduction of vehicle miles traveled (VMT) on the transportation network as a result of initiating a transit system at a level of transit service proposed in the Transit Development Program. It was found that the proposed transit system, consisting of (14) 30-passenger buses operating on six routes on 60 minute headways, would reduce VMT systemwide by 0.7 percent. This is a very insignificant reduction. The southwest Great Falls area would be provided with one transit route. While this alternative offers distinct economic and environmental advantages, it will not provide the needed transportation system for south Great Falls and will not significantly reduce congestion on 10th Avenue South.

Use of Carpools and Voluntary Travel Reductions. The use of carpools and/or voluntary travel reductions is another alternative with economic and environmental advantages. Increased cost of personal transportation may result in increased use of carpools in the future. Implementation of Transportation Systems Management (TSM) improvements such as high occupancy vehicle (HOV) lanes for the exclusive use of carpooling vehicles and/or mass transit vehicles has proven effective in encouraging carpooling in some large metropolitan areas. However, HOV lanes would not be a cost effective solution to the transportation problems in Great Falls. While carpooling and voluntary travel reductions should be encouraged, this alternative would reduce congestion on 10th Avenue South only if used intensively. It would not satisfy the other transportation needs.

Alternatives for a South Arterial Facility

Facility Corridor. The facility corridor for the alternate south arterial alignments studied to date extends from the Gore Hill Interchange on Interstate 15 on the west to the intersection of 10th Avenue South with 57th Street on the east. Proceeding east from the Gore Hill interchange, the corridor reaches a maximum width of nearly two miles at the Missouri River. It then narrows to a minimum of approximately one-half mile at 26th Street South because of the Highland Cemetery south of the corridor. East of 26th Street South the corridor again widens to nearly one and a half miles before reaching 10th Avenue South at 57th Street. The project corridor is shown on Figure 2-1.

The major physical features controlling south arterial locations are:

- The two termini, which dictate a facility that can be easily interconnected;
- The Missouri River crossing location, because cost and complexity increase with bridge length;
- The descent of Gore Hill, which will require massive cuts and/or fills; and
- The crossing of Gibson Flats versus skirting the north side of the area which is in the Sand Coulee Creek floodplain.

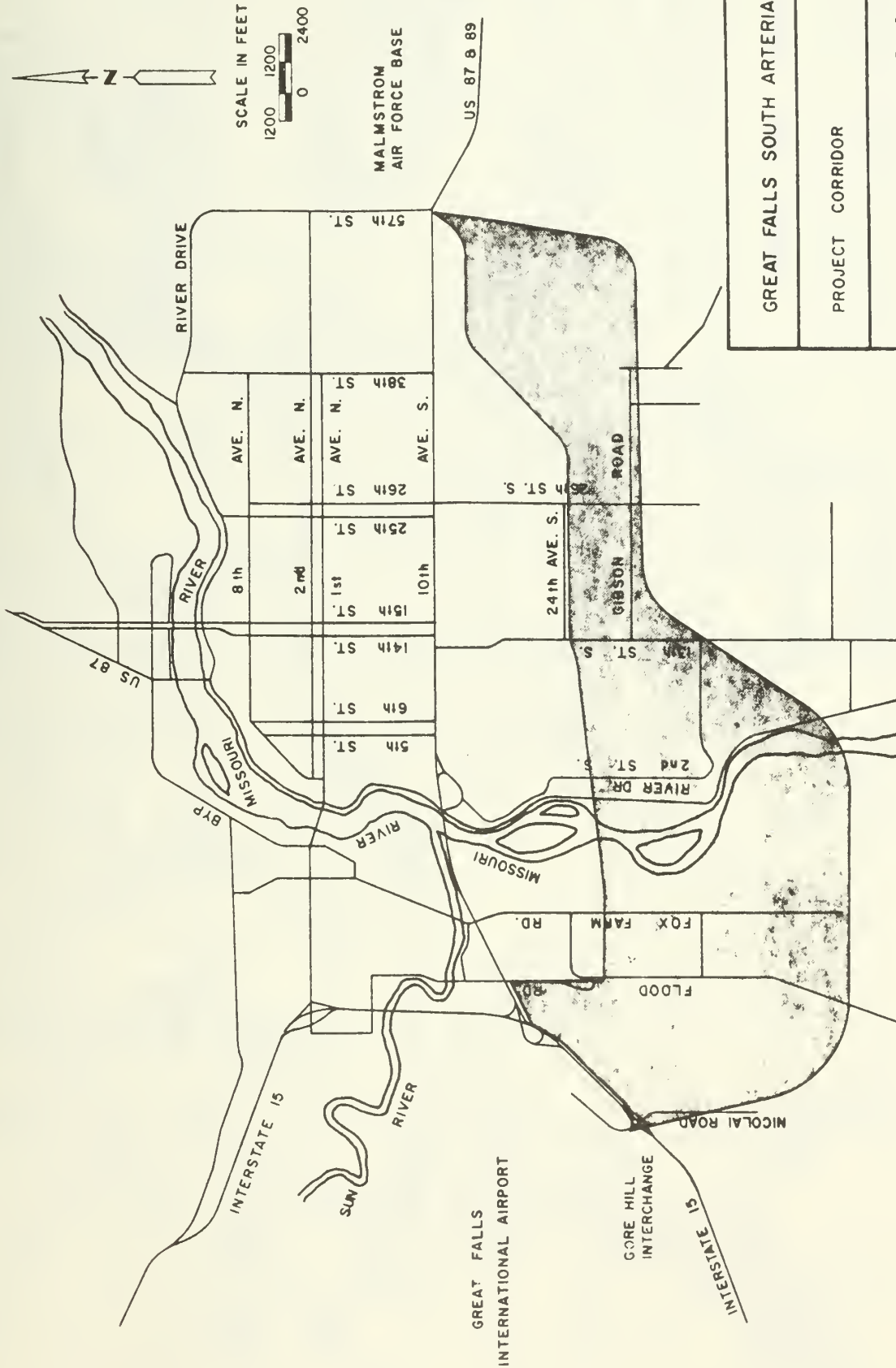
No less than 36 alternate south arterial routes have been considered since the need was established in the 1968 Transportation Plan. Most of these were studied prior to the initiation of this EIS/planning study, and subsequent development has made many of the route alternates impractical.

Planning Study Alignments. With the initiation of this planning study all of the previously considered alignments were reviewed. Additional alignments were then studied as discussed earlier. Based upon evaluation of future traffic projections and access needs, it was determined that a south arterial should be planned as an eventual four lane, divided roadway with full access control. Access should be limited to major street connections. Recognizing that funding restrictions may prohibit initial construction of the full facility, all of the full facility alternates would have the option of phased construction. Key elements of this option would be the early acquisition of adequate right-of-way for the full facility and initial construction of only a two lane facility with at-grade intersections.

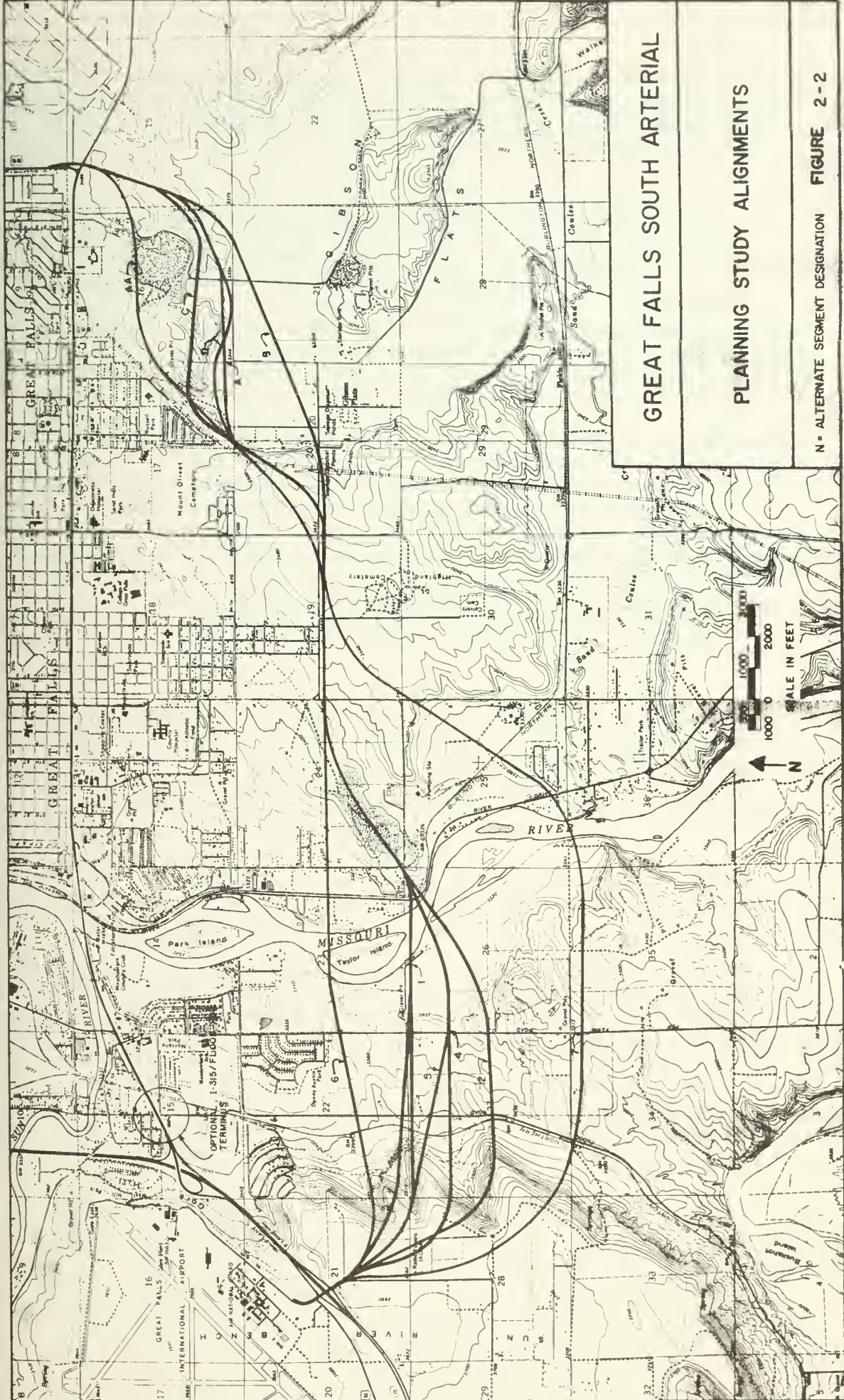
The alternate south arterial alignments can best be discussed under several conceptual alignment descriptions. The conceptual alignments are described using the route termini and the approximate location of the Missouri River crossing. The alternate alignments considered in this planning study are shown on Figure 2-2.

Airport - Bridge Between Park and Taylor Islands - 57th Street. A south arterial alignment crossing the Missouri River between Park and Taylor Islands would meet all of the transportation needs as identified and would have the advantage of a narrow river crossing. Such an alignment

GREAT FALLS - MONTANA



GREAT FALLS SOUTH ARTERIAL
PROJECT CORRIDOR
FIGURE 2 - 1



GREAT FALLS SOUTH ARTERIAL

PLANNING STUDY ALIGNMENTS

N = ALTERNATE SEGMENT DESIGNATION **FIGURE 2-2**

would cross heavily developed areas on both sides of the Missouri River. Due to the obvious personal impacts of this conceptual alignment and the availability of suitable alignments further south, this alignment was downgraded as a reasonable alternative. No formal alignments for this route concept were proposed.

Airport - Bridge South of Taylor Island - 57th Street. This generalized route initially appeared to be the most attractive. In addition to meeting the transportation needs, it offers the advantages of a narrow river crossing and minimizing adverse impacts.

Two formal route alignments were initially proposed in the western half of the project corridor utilizing this general River crossing location. These are designated as Alternates 1 and 2 on Figure 2-2. Alternates 1 and 2 join at 2nd Street South and diverge again near 26th Street South.

From this point east, two routes were initially considered, designated on Figure 2-2 as "AA" and "B". Alternate "AA" would avoid the Gibson Flats flood plain but was downgraded as a reasonable alternate because it was too close to 10th Avenue South, would cross too much prime commercial development property, would impact too much residential development in this area, and would not provide a good alignment for possible future extension of the south arterial to the east. No formal proposal was made for this alignment. In lieu of this alignment, alternate "A" was proposed which would cross only the northern tip of the Gibson Flats flood plain. Alternate "B" crosses the Gibson Flats flood plain but provides a more direct route.

As a result of public and agency input, three additional alignments were considered in the western half of the project corridor which crossed the Missouri River south of Taylor Island. These are identified as alternates 3, 4, and 5 on Figure 2-2. These alternates offer optional routes to descend Gore Hill. Alternates 4 and 5 follow an alignment midway between the original proposals west of the Missouri River.

Two additional alignments were considered in the eastern half of the project corridor. These are identified as alternates "C" and "D" on Figure 2-2, and are basically modifications of alternate "A".

Airport - Bridge at Taylor Island - 57th Street. This alternative, identified as alternate 6 on Figure 2-2, is the most direct route of those considered west of 26th Street South. It can be combined with any of the alternate routes east of 26th Street South as discussed above. Traffic projections indicate that it would be the most efficient of the alternatives relative to meeting the transportation needs. However, this alternative would cross officially designated parkland and a proposed school site. It would also impact more existing residential development than an alternate further south.

Airport Bridge North of Sand Coulee Creek - 57th Street. This conceptual alignment was originally considered and downgraded as a reasonable alternative as it was felt it is too far south to load adequately with traffic. However, some support for this alternative was voiced at public information meetings. Also, the Montana Department of Fish, Wildlife, and Parks indicated an alternate which crossed the Missouri River at this location would have the least impact on the Missouri River and associated wetlands.

Therefore, traffic projections were developed for this alignment, designated as alternate 7 on Figure 2-2. These projections confirm that this alternate does not meet the transportation needs. Many motorists would take 10th Avenue South instead of traveling the additional distance required by this alternate.

Interstate 315/Flood Road - 57th Street. This alternate would utilize an interchange at I-315 and Flood Road (14th Street Southwest) as the western terminus of the south arterial. This concept was reviewed as an alternative to the Gore Hill Interchange terminus. It could utilize any of the formally proposed routes and river crossings shown on Figure 2-2.

This concept was originally downgraded as a reasonable alternative as previous studies indicated a full interchange at I-315 and Flood Road would not be feasible due to problems related to right-of-way, geometrics, and cost. Later consideration given to a full interchange at this location by the Montana Department of Highways, however, indicated that such a concept may be feasible. Therefore, traffic projections were developed for a south arterial alignment with this western terminus.

The traffic projections indicate this alignment would not load nearly as well with traffic as an alignment with the western terminus at the Gore Hill Interchange. Similarly, traffic volumes on 10th Avenue South would be considerably higher. Also, physical conditions along the Flood Road corridor would make construction of the South Arterial in this area difficult. An existing parochial school and residential development in this area would be impacted severely by this alternate.

Reduced Facility. As an alternative to construction of a full south arterial facility, consideration was given to construction of a partial facility. In the 1979 update of the Long Range Plan of the Great Falls Transportation Plan, three alternate year 2000 transportation systems were compared to evaluate partial construction of a south arterial. The first alternate proposed the construction of the entire south arterial from the Gore Hill interchange at Interstate 15 to the intersection of 10th Avenue South and 57th Street. The second alternate proposed only partial construction from Fox Farm Road eastward to 13th Street South. The third alternate proposed partial construction from the Gore Hill Interchange to 13th Street South.

The transportation system which utilized a full facility provided significantly greater system safety and maintained higher levels of service, particularly along 10th Avenue South. The reduced facility alternates were not clearly as effective as the full facility in attracting traffic away from 10th Avenue South. On the other hand, the initial construction and maintenance costs of the partial facility alternates were far less than construction and maintenance costs for the full south arterial.

As part of this EIS/planning study, consideration was also given to a two lane facility for the full length of the corridor from the Gore Hill Interchange to the intersection of 10th Avenue South with 57th Street. However, projected traffic volumes indicate that the capacity of such a facility would be exceeded by, or shortly after, the year 2000 between Fox Farm Road and 26th Street South. Therefore, this alternative would not meet long range transportation needs. Upgrading of a two lane facility to four lanes will be required shortly after the year 2000, with the first priority segment being between Fox Farm Road and 26th Street South.

While these reduced facility alternates would not meet the long term transportation needs by themselves, they could serve as interim goal elements of a full facility under phased construction as they would meet short term transportation needs.

No Action Alternative

The existence of a "no action" alternative is common to environmental impact assessments. Inclusion of the alternative implies no activities beyond the routine maintenance of 10th Avenue South. It is also assumed that the expansion of the Warden Bridge to four lanes would be completed as scheduled, providing some temporary relief to the 10th Avenue South congestion in this area. As previously stated, pavement condition of 10th Avenue South is such that major renovation of certain segments will be necessary to maintain existing traffic levels.

Adoption of the "no action" alternative would have no impact on the biophysical environment of the south arterial corridor. As traffic volumes increase and traffic flow is impeded, it would result in further degradation of the air quality along 10th Avenue South which presently does not meet federal or state air quality standards. The increased traffic congestion and traffic delay times could have a negative economic effect on commercial development along 10th Avenue South. Noise levels would also increase as traffic volumes increase.

The "no action" alternative does not meet the transportation needs as identified. Also it would have a detrimental effect on land use planning for the area south of 10th Avenue South as a right-of-way corridor for a south arterial facility would not be defined.

Summary and Evaluation of the Alternatives

Figure 2-3 summarizes information generated relative to the selection of reasonable alternatives. It provides a basis for a qualitative evaluation of conceptual route alignments and south arterial alternatives with environmental, physical and cultural considerations. These subjective evaluations do not necessarily represent actual established impacts of the alternatives.

FIGURE 2-3
SELECTION OF REASONABLE ALTERNATIVES

A Summary Evaluation of the Alternatives	CRITERIA UTILIZED	Relationship to Transportation Needs			Anticipate Southside Growth	Barriers to Imple- mentation		Displacement of Homes and Businesses	Generalized Environmental Impact	Impact on Recreation and Historical Sites	Cost of Construction	Selected as a Reasonable Alternative
		Reduce Congestion on 10th Avenue South	Provide Arterial Route for Southside Access	Allow through Traffic to Bypass 10th Avenue South		Physical	Cultural					
Legend: Favorable Slightly Favorable Neutral or Moderate Adverse Serious Adverse	ALTERNATIVES REVIEWED											
No Action												
Upgrade 10th Avenue South												+
Convert 10th Avenue South to a One Way System												
High Level of Mass Transit Use												
Car Pooling & Voluntary Reduction in Travel												
Airport - Bridge North of * Taylor Island - 57th Street												
Airport - Bridge at Taylor* Island - 57th Street												✓
Airport - Bridge South of * Taylor Island - 57th Street												✓
Airport - Bridge near Sand* Coulee Creek - 57th Street												
I-315/Flood Road - Bridge - * 57th Street												
Reduced Facility												

+ This alternative could be a complimentary action with a south arterial alternative to permit staged construction.

* These alternatives have the following options:

- 1) Staged construction
- 2) The east segment could go across Gibson Flats or along the base of the ridge north of Gibson Flats.

After studying all of the alternatives, it was determined that none of the alternatives to a south arterial would meet the transportation needs. Two of the conceptual south arterial alternates appeared reasonable based on their ability to meet the transportation needs. These are the "Airport - Bridge South of Taylor Island - 57th Street" alternate and the "Airport - Bridge at Taylor Island - 57th Street" alternate.

Of the formal alignments crossing the Missouri River south of Taylor Island, alternates 4 and 5 provide the best locations for descending Gore Hill and appear to have the least adverse impacts. Therefore they were retained as reasonable alternatives. Alternate 6, which crosses the River at the north end of Taylor Island was retained as a reasonable alternative because it is the most direct route and because it loads better with traffic than the other alternate routes.

East of 26th Street South, alternates B and D were retained as reasonable alternatives. Alternate B was selected as this was the most direct route in this area of the alignment corridor. Alternate D was selected as this alignment skirts the north edge of the Gibson Flats floodplain. Alternate segments B and D can be combined with any of alternate segments 4, 5 and 6 to yield six reasonable alternatives.

As discussed, the "Upgrade 10th Avenue South" and the "Reduced South Arterial Facility" alternatives, while not reasonable alternatives by themselves, were retained as options for the phased construction of a south arterial alternative.

The "no action" alternative was also retained for evaluation although it does not meet the identified transportation needs. This alternative must be considered however as this is always an available course of action.

DETAILS OF THE REASONABLE ALTERNATIVES

The continuous planning/EIS process has identified six reasonable alternatives. These are south arterial alternatives 4-B, 4-D, 5-B, 5-D, 6-B, and 6-D. Of these, alternative 5-D was selected as the preferred alternative. Alternative 5-D is shown on Figure 2-5. Year 2000 traffic projections are also shown on this figure for the south arterial and for selected other arterial streets. All of the reasonable alternatives are shown on Figure 2-6. 1980 and year 2000 traffic projections for the "no action" alternative are shown on Figure 2-7. Details of each of the reasonable alternatives are presented in this section.

The Preferred Alternative

South Arterial Alternative 5-D was selected as the preferred alternative after careful review and evaluation of the May 1, 1980 public hearing transcript and the draft EIS comments. This alternative involves construction of a controlled access arterial roadway south of 10th Avenue South, extending from the Gore Hill Interchange of Interstate 15 to the intersection of 10th Avenue South and 57th Street.

Due to the magnitude of the south arterial project and to funding limitations, the south arterial would be built in stages with only two lanes and at-grade intersections planned for construction prior to the year 2000. This should provide adequate system capacity to the year 2000. A key element of this project would be the early acquisition of adequate right-of-way for the full facility to provide for the future upgrading of the roadway to four lanes and to provide for the possibility of full access control. This would minimize impacts to future development, permit more orderly growth in the project area, and also protect against the public's future expenditure for escalating property values.

The alignment of Alternative 5-D is composed of alternate segments 5 and D as described later in this Chapter. The overall length of this alignment is 8.85 miles. The total estimated cost for Alternative 5-D for engineering, acquisition of right-of-way for the full south arterial facility, and construction of a two lane roadway with at-grade intersections is \$13,647,800. this cost includes \$8,548,200 for construction, \$4,159,300 for right-of-way, and \$940,300 for engineering. Since the balance of the full facility construction will likely occur beyond the year 2000, costs for this construction are not included here.

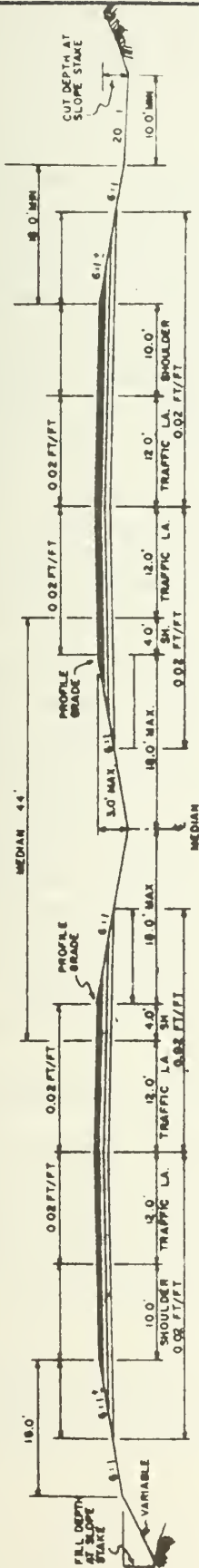
Alternative 5-D is preferred because it would meet the transportation needs while minimizing significant project impacts including relocation of residents; visual impacts; impacts to designated flood plains along the Missouri River and in Gibson Flats; and impacts to school, park, and recreational properties. It would enable the descent of Gore Hill with the flattest grades practical and would minimize project costs due to the location of the Missouri River crossing. This alternative would impact some wetlands and the Lewis and Clark Portage Route, a national historic landmark. However, there are no practical alternatives to avoid these impacts. The impacts of all of the reasonable alternatives are discussed in detail in Chapter 3.

Design Details. The typical roadway cross section for the full south arterial facility for Alternative 5-D would conform to Typical Section No. 1 on Figure 2-4. Traffic lanes will be 12 feet in width with 10-foot wide outside shoulders. Typical Section 1 provides a 44-foot wide depressed, grassed median with 4-foot wide paved inside shoulders. Preliminary design criteria have been developed using a 50 mph design speed.

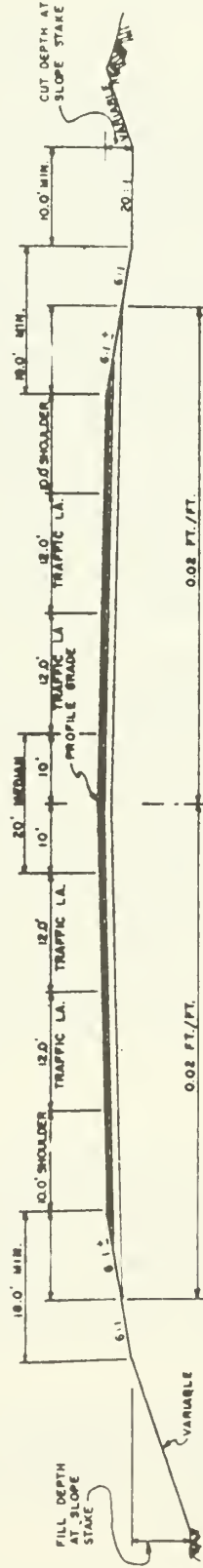
The south arterial will be a controlled access facility with access limited to major street connections. Private driveway connections will be prohibited. The effects of access locations were studied utilizing computerized traffic assignments for south arterial alignments with various combinations of access locations and frontage roads. Based on this analysis it was determined that access should be provided at the following locations:

- the Gore Hill Interchange;
- Nicolai Road;
- Fox Farm Road;
- 2nd Street South;

TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2



GREAT FALLS SOUTH ARTERIAL

TYPICAL CROSS SECTION

FIGURE 2-4

- 13th Street South;
- 26th Street South;
- 39th Street South; and
- 57th Street at 10th Avenue South.

Frontage roads will be provided where necessary to improve access from other routes and to maintain access to abutting property. Grade separations will be provided over the Burlington Northern Railroad tracks and Flood Road west of the Missouri River and across River Drive and the Burlington Northern Railroad tracks east of the Missouri River to maintain traffic movement on those routes. Interchanges are ultimately planned for all access locations except at Nicolai Road to insure that the south arterial will be able to meet transportation needs beyond the year 2000. An interchange at Nicolai Road is not considered feasible due to its proximity to the Gore Hill Interchange and to the grades required to descend Gore Hill. Therefore, an at-grade intersection is planned at Nicolai Road. The Gore Hill Interchange will be expanded with the addition of a parallel two-lane over pass structure to provide the required capacity. A connecting road would be provided between River Drive and 2nd Street South as direct access to the South Arterial from River Drive is not feasible. This connecting road will cross the Burlington Northern Railroad tracks east of River Drive with an at-grade crossing.

At the 10th Avenue South/57th Street terminus, consideration was given to a diamond interchange configuration as well as a partial cloverleaf interchange. Preliminary traffic analyses suggested that the partial cloverleaf configuration may provide operational benefits at this location. However, a final determination as to the preferred interchange configuration cannot be made at this time as construction of an interchange here may not be effected until after the year 2000. Adequate right-of-way will be acquired for the partial cloverleaf interchange as this would allow sufficient right-of-way for the future construction of either configuration. Construction of the partial cloverleaf interchange would require the displacement of two existing commercial businesses at this location. Acquisition of these parcels may be deferred until the preferred interchange configuration can be determined.

The Other Reasonable Alternatives

All of the reasonable alternatives would involve the same stage construction sequence and design details as presented for the preferred alternative with one exception; alignments utilizing alternate segment B would employ typical section 2 on Figure 2-4 where they cross the Sand Coulee Creek floodplain. Typical Section 2 features a 20-foot wide paved median in lieu of the grassed median provided in typical section 1, which would be used at all other locations.

The alignments of the six reasonable alternatives are composed of various combinations of five alternate route segments. These are alternate segments 4, 5, 6, B, and D. For the purposes of presentation, the five

alternate route segments will be discussed independently. Table 2-1 then compares the overall length and relative costs of each of the reasonable alternatives.

Alternate Segment 4

Alternate segment 4 is the most southerly and longest of the three alternates west of 26th Street South. Beginning on airport road approximately 0.3 miles north of the Gore Hill Interchange, the alignment proceeds across Interstate 15 in a southeasterly direction across the SE 1/4 of Section 21-T20N-R3E of the Montana Principle Meridian and across the NE 1/4 of Section 28-T20N-R3E. It then proceeds easterly across the N 1/2 of Sections 27 and 26-T20N-R3E and curves northeasterly to cross the Missouri River. The alignment continues northeasterly and easterly across the S 1/2 of Section 24-T20N-R3E. It continues east across the center of Section 19-T20N-R4E parallel to and south of Gibson Road to 26th Street South.

The overall length of alternate segment 4 is 5.53 miles. The maximum grade would be approximately 6.8 percent descending Gore Hill. Alternate segment 4 crosses the Missouri River south of Taylor Island, crossing the northern tip of a marshy area on the west bank of the River. Due to the crossing location, this alternate is able to cross the Missouri River, River Drive, and the Burlington Northern Railroad with the same crossing structures. Total structure length for this crossing is 1730 feet.

Alternate Segment 5

Alternate segment 5 is similar to alternate segment 4 except that it descends Gore Hill at a location slightly north of alternate segment 4, crossing the extreme southwest corner of Section 22-T20N-R3E. Alternate segment 5 merges with alternate segment 4 at the Missouri River crossing and follows the alignment of alternate segment 4 east to 26th Street South.

The overall length of alternate segment 5 is 5.32 miles. The maximum grade for this alignment would be approximately 6.0 percent descending Gore Hill. This is somewhat less than for alternate segments 4 or 6, primarily because alternate segment 5 crosses two coulees which allow the descent to be effected over a longer distance. Centerline cuts and fills and haul distances would also be less than for alternate segments 4 and 6. The crossing of the Missouri River, River Drive, and the Burlington Northern Railroad would be identical to that of alternate segment 4. Total structure length for this crossing would again be 1730 feet.

Alternate Segment 6

Alternate segment 6 is the most northerly and shortest of the three alternate alignments west of 26th Street South. Beginning on Airport Road approximately 0.3 miles north of the Gore Hill Interchange, the alignment

proceeds southeasterly across the Gore Hill Interchange and curves immediately easterly to cross the SE 1/4 of Section 21-T20N-R3E and the south 1/2 of Sections 22 and 23-T20N-R3E. This alignment crosses the Missouri River near the center of said Section 23 and crosses the north tip of Taylor Island. It then continues easterly across the center of Section 24-T20N-R3E and merges with alternate segments 4 and 5 just west of 13th Street South. All three alternate segments follow a common alignment from 13th Street South to 26th Street South being just south of and parallel to Gibson Road.

Alternate segment 6 crosses two parcels owned by School District #1 and land east of Fox Farm Road planned for parkland development by the City of Great Falls. Taylor Island is also designated as official parkland. The alignment passes just south of the heavily developed areas of the Grande Vista Addition and Fox Farm Addition west of the Missouri River and passes through a heavily developed area east of the Missouri River.

The overall length of alternate segment 6 is 4.98 miles. The maximum grade would be 7.0 percent descending Gore Hill. Due to the location of the River crossing, separate crossing structures would be required for the Missouri River crossing and for the River Drive/BNRR crossing. Total structure length for these crossings would be 1890 feet.

Alternate Segment B

Alternate segment B begins immediately west of 26th Street South and proceeds easterly across Gibson Flats crossing the center of Section 20-T20N-R4E. It then curves northerly, crossing the extreme southeast corner of Section 16-T20N-R4E and the west 1/2 of Section 15-T20N-R4E, continuing to the eastern project terminus approximately 0.35 miles north of the intersection of 10th Avenue South and 57th Street.

Alternate segment B would cross the floodplain of Sand Coulee Creek. It would require approximately 100,000 cubic yards of borrow to construct the fill needed to cross Gibson Flats with a grade separated access facility at 19th Street South (Shields Avenue) and a truck underpass for a haul road near the north-south 1/4 section line in Section 21.

The overall length of alternate segment B is 3.39 miles. The maximum grade is approximately 3.7 percent just east of 26th Street South descending into Gibson Flats.

Alternate Segment D

Alternate segment D also begins immediately west of 26th Street South. It proceeds northeasterly across the NW 1/4 of Section 20-T20N-R4E. It then continues easterly in a curvilinear alignment dropping into Gibson Flats and following the base of the ridge north of the Flats, crossing the extreme northwest corner of the NE 1/4 of said Section 20, the SE 1/4 of Section 17-T20N-R4E, and the south 1/2 of Section 16-T20N-R4E. The

alignment then curves northerly, where it merges with alternate segment B and follows a common alignment to the eastern project terminus approximately 0.35 miles north of the intersection of 10th Avenue South and 57th Street.

Alternate segment D skirts the north edge of the floodplain in Gibson Flats and crosses a marshy area at the base of the ridge in Section 17 at the proposed 39th Street South access location. Borrow material will not be required with alternate segment D as it would be with alternate segment B. A truck underpass will be provided for the truck haul road near the north-south 1/4 Section line in Section 16 to maintain access to the gravel pit to the south.

The overall length of alternate segment D is 3.53 miles. The maximum grade is approximately 2.7 percent immediately east of 26th Street South.

Table 2-1

COST COMPARISON OF THE REASONABLE ALTERNATIVES

	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D
Length, miles	8.92	9.06	8.85	8.37	8.51	
Right-of-Way,	R.O.W. ^a					
Construction, &	\$ 4,186,300	\$ 4,309,300	\$ 4,036,300	\$ 4,159,300	\$ 4,887,200	\$ 5,010,200
Engineering Costs	Constr. ^b					
	\$ 9,077,000	8,843,600	8,781,600	8,548,200	10,012,600	9,779,200
	Engr.					
	\$ 998,500	972,800	966,000	940,300	1,101,400	1,075,700
Total	\$14,261,800	\$14,125,700	\$13,783,900	\$13,647,800	\$16,001,200	\$15,865,100

Notes: a. Right-of-way costs shown are for the full facility. Adequate right-of-way will be acquired initially for the total facility, including right-of-way for possible future interchanges.

b. Construction costs shown are for a two lane roadway with at-grade intersections. Due to funding limitations, only two lanes are planned for construction by the year 2000.

Source: HKM Associates

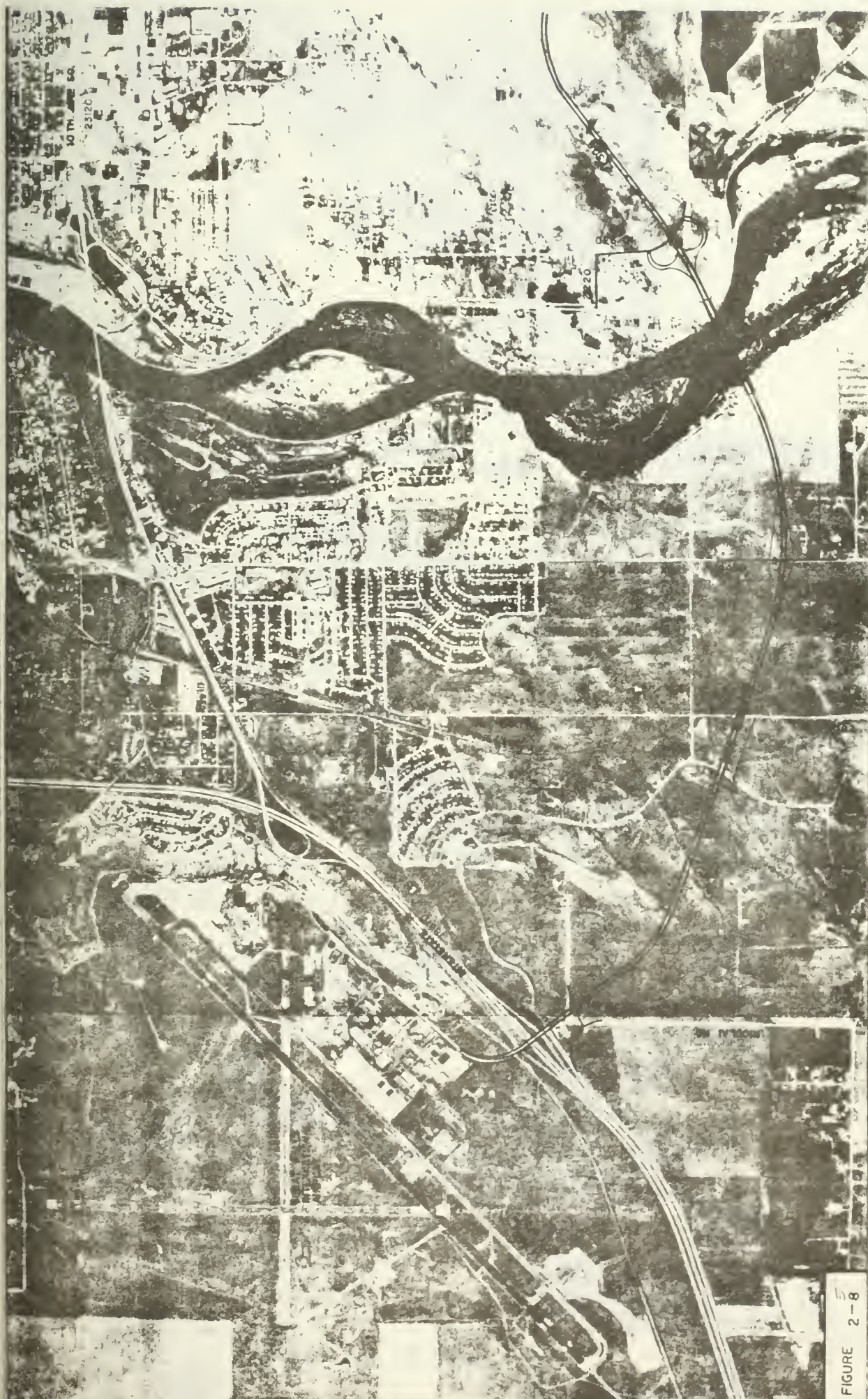


FIGURE 2-8

Insert Figure 2-6 here (2 sheets)

(new figure similar to Figure 3-12
showing alternate segments 4, 5, 6, B, & D)

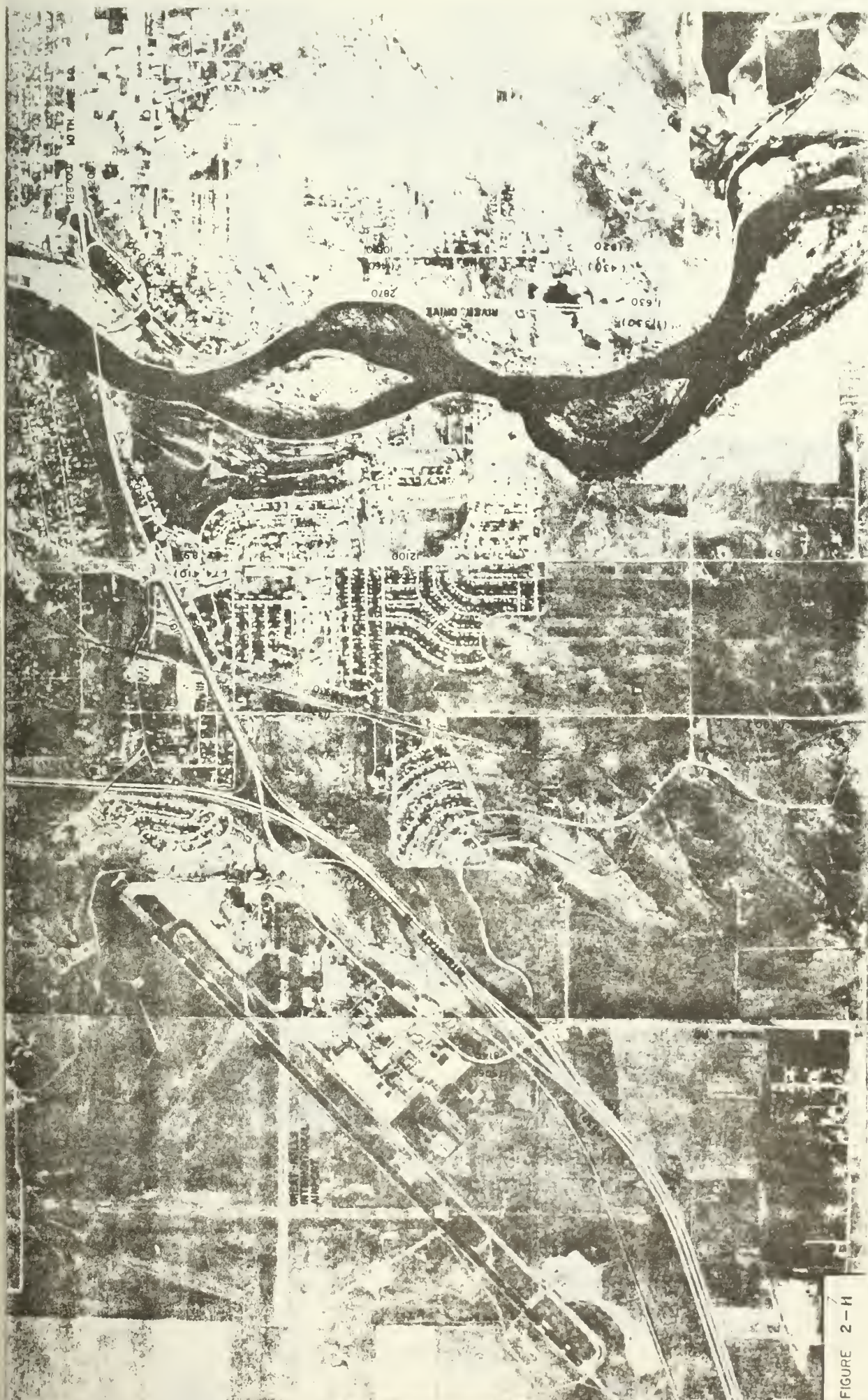
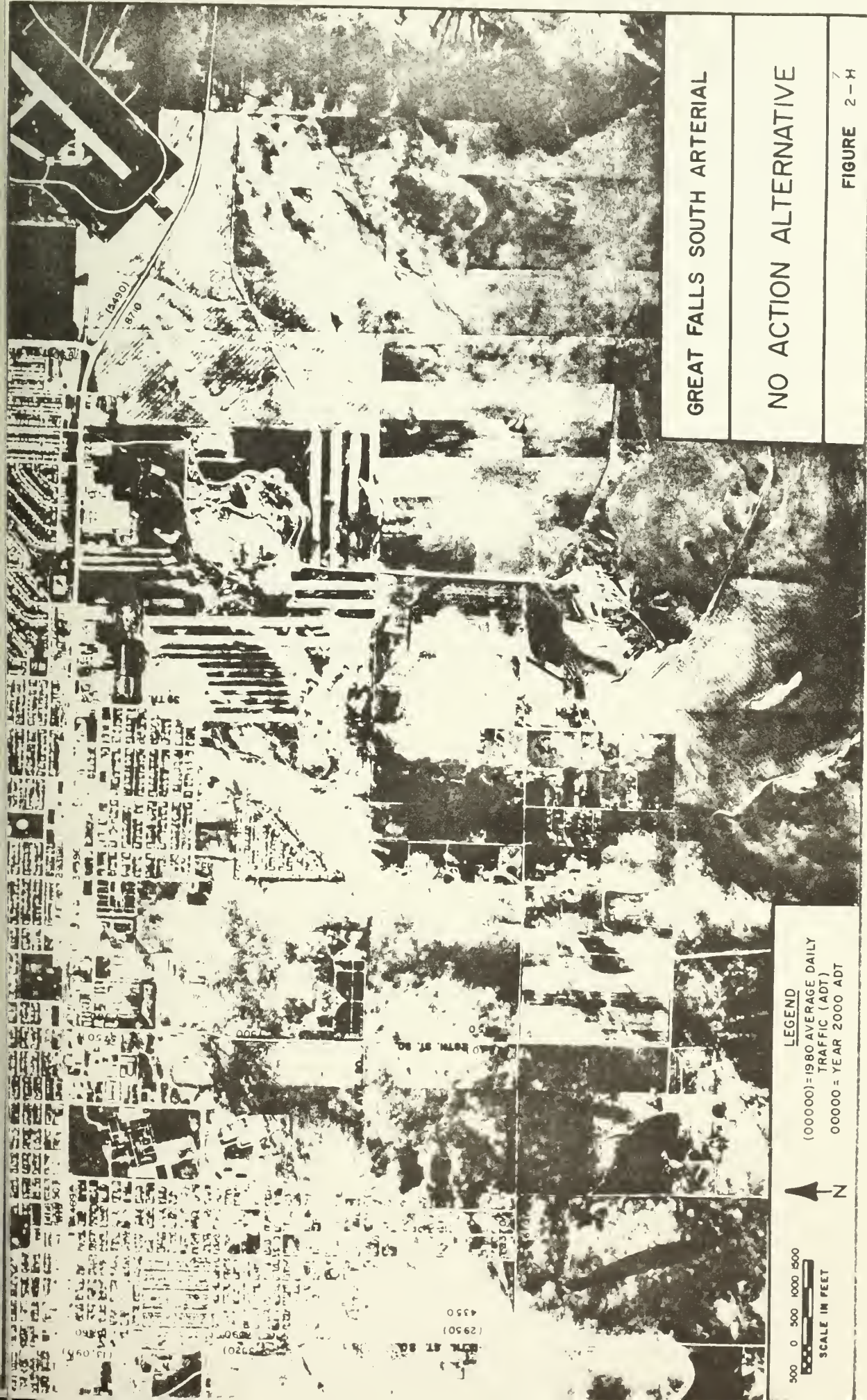


FIGURE 2-H



CHAPTER 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter will discuss the probable effects of the proposed project on the existing environment. Each environmental impact parameter will be listed with a brief description of the existing relevant environment, the probable environmental effects of the various route alternatives on the selected parameter, and the mitigation measures proposed to minimize the adverse environmental impacts of the preferred alternative.

The impacts addressed in this chapter are grouped under two major headings: Impacts on the Human Environment, and Impacts on the Natural Environment. These impacts include:

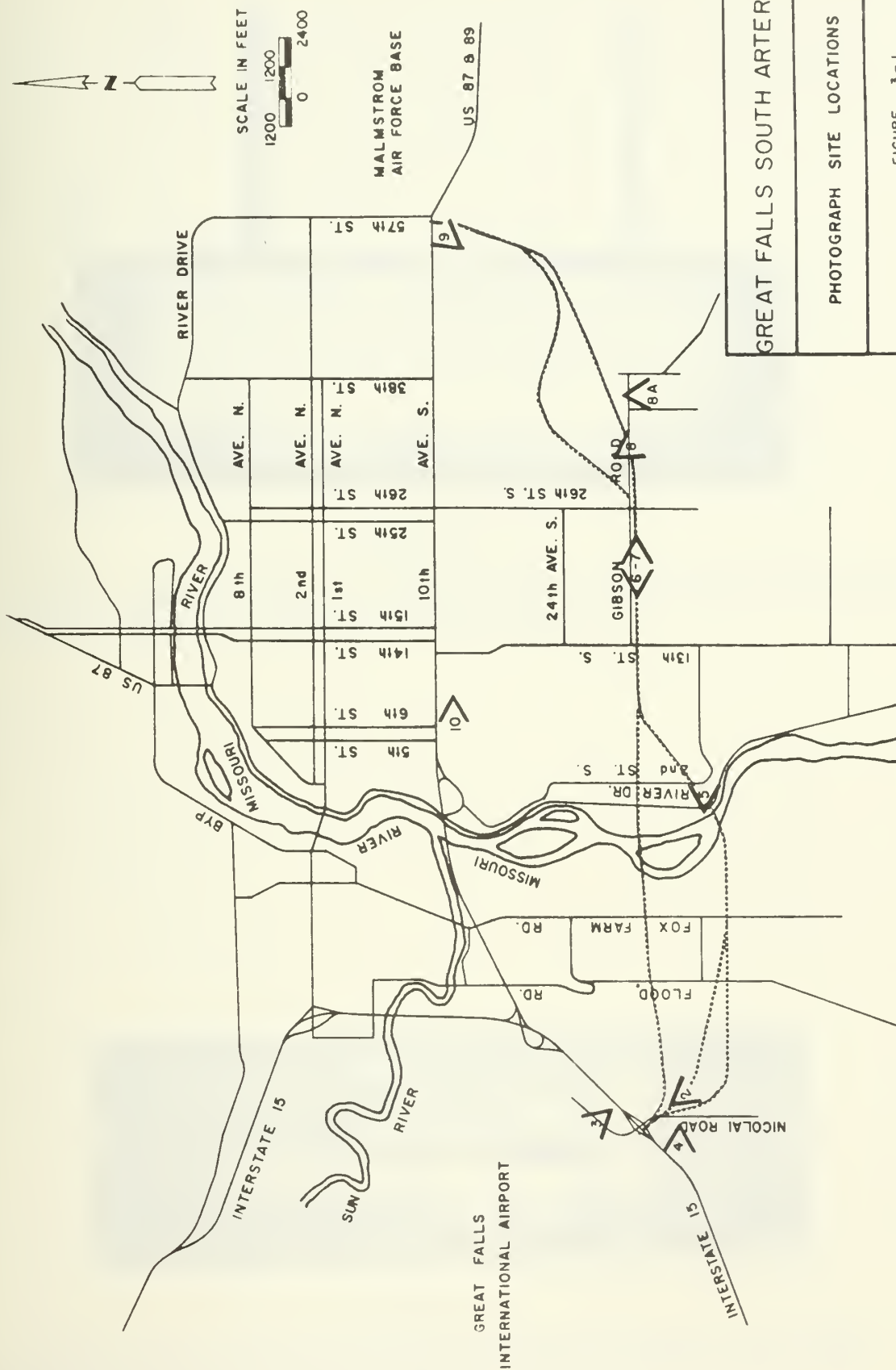
- Human Environment
 - Social & Economic Impacts;
 - Relocation Impacts;
 - Visual Impacts;
 - Noise Impacts;
 - Land Use and Zoning Impacts;
 - Historical/Cultural Site Impacts; and
 - Impacts on Section 4(f) Properties.
- Natural Environment
 - Natural Resources Impacts;
 - Wetlands Impacts;
 - Flood Hazard Impacts;
 - Stream Modification or Impoundment Impacts;
 - Air Quality Impacts; and
 - Water Quality Impacts.

Also discussed are construction impacts.

An impact/alternative comparison summary can be found on Table 3-18 at the end of this Chapter. The discussion of these impacts in this EIS is necessarily a summary of intensive investigations conducted as part of the EIS/planning study. All technical reports and supportive studies are listed in Appendix A.

In order to give the reader a better understanding of the existing south arterial corridor environment, photographs taken from various locations along the corridor are exhibited on Figures 3-2 through 3-10. Figure 3-1 identifies the photograph site locations.

GREAT FALLS - MONTANA



GREAT FALLS SOUTH ARTERIAL

PHOTOGRAPH SITE LOCATIONS

FIGURE 3-1

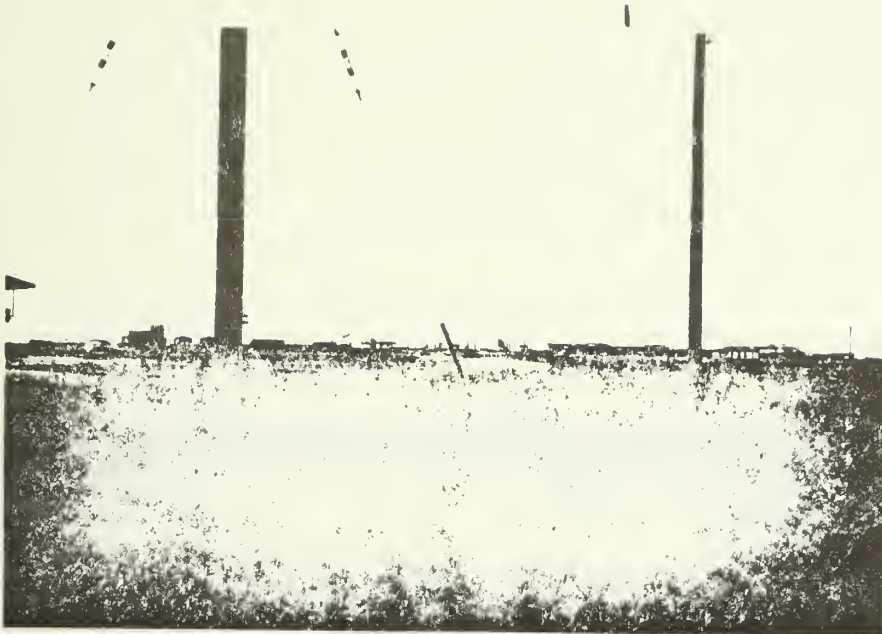


Figure 3-2

July 1979 - View of Gore Hill interchange on I-15 (proposed South Arterial western terminus). Looking NW towards airport.

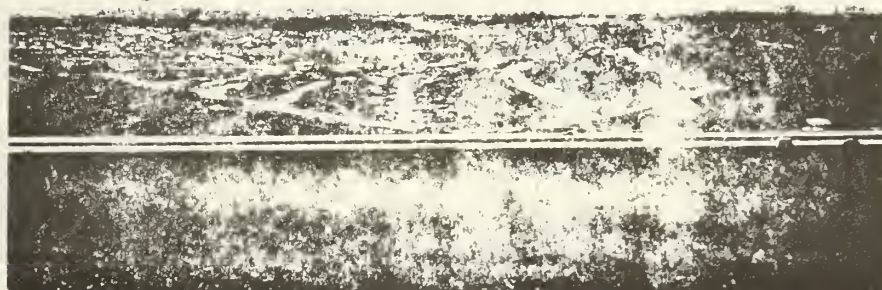


Figure 3-3

July 1979 - View from Sun River Bench looking SE across I-15 towards Missouri River and alternate segments 4, 5, and 6.



Figure 3-4

July 1979 - View from highest elevation of proposed South Arterial on Core Hill. Looking east onto alternate segments 4, 5, 6.

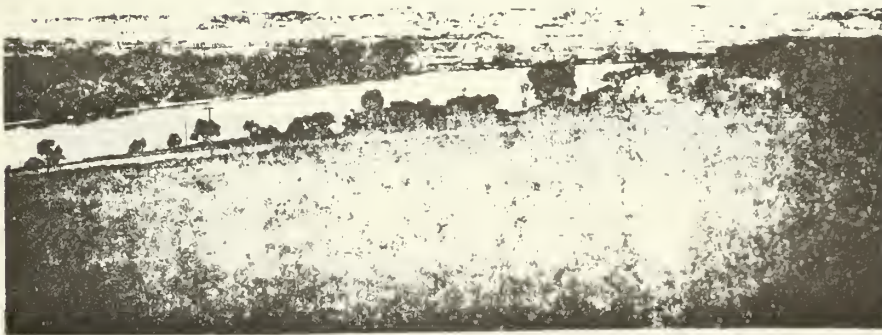


Figure 3-5

July 1979 - View of Missouri River crossing alternate segments 4 and 5. Looking west towards Fox Farm Road-South Arterial Interchange from 2nd Street South.



Figure 3-6

July 1979 - View of Gibson Road at 20th Street South looking west toward Gore Hill.



Figure 3-7

July 1979 - View of Gibson Road at 20th Street South looking east toward Gibson Flats.

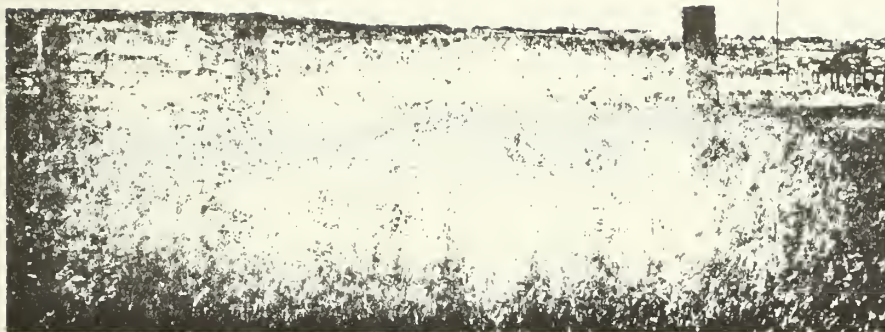


Figure 3-8

July 1979 - View of Gibson Flats and alternate segments B and D looking NW from Gibson Road.



Figure 3-8A

July 1979 - View of Gibson Flats and alternate segments B and D looking north from Gibson Road toward 39th Street South.

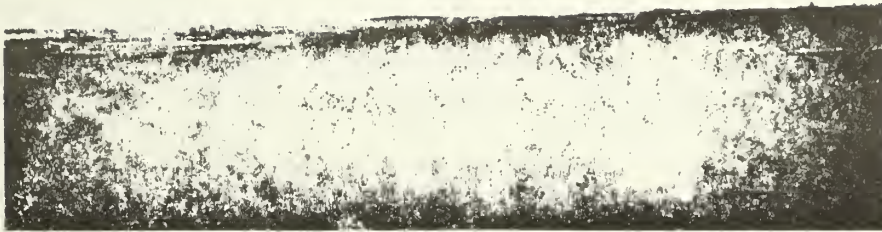


Figure 3-9

July 1979 - View from South Arterial - 57th Street and 10th Avenue South proposed interchange looking SW toward Gibson Flats.



Figure 3-10

December 1979 - View of 10th Avenue South. Looking east toward 9th Street South.

THE HUMAN ENVIRONMENT AND RELATED IMPACTS

Social And Economic

Discussion. The quality of the existing social environment is a major determinant of the significance of an impact on that environment. The quality will have different levels of significance, although the impact magnitude may remain the same. The actual level of significance assigned will depend on the ability of the existing environment to absorb impacts without falling below a given level of quality. Thus, a small action on a highly sensitive environment may cause a greater level of significance than a larger action may cause on an environment whose tolerance to absorb adverse impacts is greater.

The effects of a project or plan on people and people's responses may be direct and immediate or remote and attenuated. Depending on the existing conditions, an impact may be minor or major. Short-term impacts are generally minor because their duration is temporary. Long-term impacts are major because they continue to exert effect over a longer period of time. Similarly, a project that impacts a larger area is likely to be major. Significance of impact is, therefore, related with time frame and the geographic area covered. Prerequisite to any rational assessment of human impacts and responses is an inventory and depiction of the relevant social environment.

Existing Environment.

History. Great Falls was named for the impressive cataracts at this spot, which marked the navigable limits of the Missouri River. Paris Gibson, a prosperous sheep rancher near Fort Benton, was a close friend of James J. Hill, founder of the Great Northern Railroad. Gibson, who was also an engineer, agreed with Hill that the Great Falls area was a logical site for a railroad terminus, and laid out a town which was incorporated in 1888 as Great Falls with Gibson as the first mayor. The next year the new town became part of a new state when Montana was admitted to the Union. Gibson had planned his town well and it grew as an attractive community with wide streets and numerous parks.

Early industrial development included a dam and hydroelectric plant at Black Eagle Falls, smelting plant, a meat packing plant and a flour mill built by Paris Gibson in 1885. Much of the growth of the city can be attributed to the construction and operation of several hydroelectric dams at the various falls of the Missouri River where power of the falling river has been put to productive use. The importance of agriculture to the growth of the area is reflected today in the large number of business houses and related facilities that are associated with agriculture and livestock raising.

The age of the buildings indicates that the early development of the city was located in the area to the east of the river and in close proximity to the business district. Early residential construction occurred in this general vicinity where employment centered in the commercial and industrial establishments. The later construction of railroad yards on the west side of the river and the smelter and mill in the vicinity of Black Eagle contributed to the expansion of these areas.

Malmstrom Air Force Base, just east of Great Falls, which was established as a bomber training base during World War II, has also played an important part in the development of the area. This air base currently serves as a control center for a vast missile complex located throughout northern and central Montana.

Great Falls is now the major city of a five-county agricultural region commonly referred to as the "Golden Triangle". It is the second largest city in Montana, providing retail, wholesale, manufacturing, education, health and financial services to nearly 250,000 people.

Population. 39,214 people lived within the Great Falls corporate limits in 1950; by 1960 there were 55,357, an increase of over forty percent. By comparison, the statewide growth rate was less than fifteen percent during the same years. The Great Falls growth rate slowed drastically during the next decade to 8.7 percent with 60,091 people counted in 1970. The preliminary 1980 census estimates show a 1980 population of 56,568, a 5.9 percent decrease from 1970 for the City as a whole. There are currently many vacant homes in Great Falls due to overbuilding in 1977-78, reduction of Air Force and Boeing personnel, and a tight money market with high interest rates.

Between 1960 and 1970 Cascade County experienced a higher growth rate than Great Falls - 11.4 percent - reflecting the development of suburban residential areas. Suburban development continued during the 1970's, although the preliminary 1980 census estimates for Cascade County show a 1.6 percent decline in population during this period. The population decline is partly attributable to the fact that the number of persons per dwelling unit dropped nearly a half-person per household from 3.1 persons in 1970 to 2.7 in 1980. This follows a national trend reflecting such social factors as more divorces and lower birth rates. This suburban growth has been mainly to the west and south and primarily consists of single-family homes on large lots, leading to low population densities. There has been commercial development throughout the urban area, but recent concentration has been along 10th Avenue South.

Information was provided by the Great Falls Building Department on the following recent construction projects south of 10th Avenue South:

- 50 units of subsidized multi-family housing are being constructed by the Great Falls Housing Authority, 30 units just south of Deaconess Hospital at 26th Street and 16th Avenue South, and 20 units in the Charles Russell Addition at 11th Avenue South and South 33rd Street.
- A new dental clinic complex, K-Mart store, and Safeway store have been completed in the area south of 10th Avenue South.
- The Holiday Village Shopping Center, located on 10th Avenue South and already the largest center in the state, is undergoing remodeling with talk of a second story.

Local planners prepared a special population projection for the "1976 Great Falls Urban Transportation Study." The transportation study area, which extends beyond the city limits, had a 1971 population of 72,600. Projections for the area to the year 2000 are shown in Table 3-1.

Table 3-1
PROJECTED POPULATION

<u>Year</u>	<u>Population</u>
1980	79,956
1990	88,321
2000	97,562

Source: Great Falls City-County Planning Board

Since the preliminary 1980 census figures show a population decrease between 1970 and 1980 for the City of Great Falls, the City-County Planning Board staff conducted a review and reassessment of the population projections prepared in 1976. Based on the staff report, the Technical Advisory Committee and Policy Coordinating Committee of the Planning Board reaffirmed that the projections are reasonably valid, particularly for the south and southwest Great Falls areas. While the population of Great Falls as a whole has declined between 1970 and 1980, the southwest and south Great Falls areas have experienced marked increases in population during this same period. A comparison of the Transportation Study Area population projections with the preliminary 1980 Bureau of Census data for the southwest Great Falls area shows that the transportation population projections for 1980, which assumes a 1 percent annual growth rate, are 11 percent higher than the census figures. While the population of Great Falls declined in the 1970's, local planners do not feel this trend will continue in the future.

Real estate speculation within the project area supports the contention that one of the significant future growth areas of Great Falls will be southwest of the City.

Economy. The Great Falls area economy has historically been based on agriculture and livestock and resource-related manufacturing. During World War II, the Great Falls Air Force Base, later renamed Malmstrom Air Force Base, was established, adding the element of defense activities. Attitudes that developed over the years somewhat inhibited industrial expansion; it was felt that such endeavors would only encroach upon the area's highly valued recreational resources and scenic beauty.

Two events, both occurring in 1972, significantly changed local sentiments and opened the door for subsequent adoption of programs and policies that would not only attract new industry to the area, but would initiate long-overdue areawide master planning of land use. The overall decline of the nation's economy, precipitated in part by the energy crisis, plus the closure of the Anaconda Company's zinc reduction operations and curtailment of anti-ballistic missile (ABM) construction at Great Falls, created not only a high local unemployment rate, but also caused many skilled workers to look for employment out of the area. More recently, in late 1980, the Anaconda Company closed its entire facility north of Great Falls as a result of the closure of its operations in Anaconda, Montana.

In 1972 an Overall Economic Development Plan (OEDP) was formulated by a citizens committee which not only cited problem areas that required immediate attention, but put forth positive steps necessary to restore the area's economic health.

Local government has actively supported an orderly industrial, commercial, and residential growth program in recent years. Various agencies of the city, such as the Great Falls Chamber of Commerce and the Economic Development Corporation of Great Falls, have initiated broad programs to attract new industries to the area and to encourage the expansion of existing ones.

Agriculture and livestock continue to be a dominant force in the area's economy. The region is particularly noted for its high production of quality wheat and barley. Two-thirds of Montana's grain is marketed by firms located in Great Falls. Each year, larger numbers of cattle remain for finishing on locally produced grains instead of being shipped to the Midwest, thus providing the basis for a new and important industry (feedlots) and expanded meat-packing operations. The area also is becoming well known for registered high-quality breeding stock. Some of the finest Charolais, Simmental, Hereford, and Angus herds are raised around Great Falls.

The city is known as a center for the storage, processing, and marketing of grain and feed products with General Mills and Con-Agra of Montana as the largest manufacturing employers. As a petroleum center, the city is growing too. The Phillips Petroleum Company has a refinery north of the city, just west of the Anaconda facility, that processes an average of 6,200 barrels of crude oil per day. The area from Great Falls north to the Canadian border yields more than half the state's total petroleum output. Great Falls is also the terminal and gathering point for the Yellowstone pipeline.

Tourism is having a growing impact on the Great Falls economy. The city is favorably located in an area of plains, mountains, lakes, rivers, streams, and forests and offers a multitude of attractive recreational and resort facilities. Great Falls is situated midway between Glacier and Yellowstone national parks, and visitors to either of these well-known attractions usually include Great Falls in their itinerary.

A factor in the area's economic development for the past 30 years, Malmstrom Air Force Base is the nerve center of the nation's first Minuteman missile defense complex and headquarters for the 341st Strategic Missile Wing and the 24th Air Division of the Air Defense Command (NORAD). In addition to providing employment for nearly 800 civilians, this military installation is manned by over 6,000 military personnel. In 1977 the base's impact on the local economy amounted to nearly \$162 million. Recently, however, 1000 jobs were phased out at Malmstrom Air Force Base.

The Montana Air National Guard also is headquartered at Great Falls. Located adjacent to the airport on Gore Hill, MANG employs over 350 full-time civilian and military technicians plus about 1000 active Air Guard members from throughout the state who train at Great Falls.

Other factors which could influence the future of the area's economy include the possible siting of a new coal fired power generating facility by Montana Power Company, the possible development of a large beef packing facility in Great Falls, potential ethanol plant development, and potential oil related development resulting from exploration in the "overthrust belt" near Great Falls.

The labor force in Cascade County numbered 24,184 in 1960 and 32,804 in 1970, an increase of 36 percent. At the same time, the Great Falls labor force increased 24 percent, from 19,452 in 1960 to 24,183 in 1970. The Cascade County labor force for the month of September for the period 1977-1979 was as follows:

September 1977 --	34,800
September 1978 --	36,800 -- 11% increase over 1977
September 1979 --	35,600 -- 3% decrease from 1978

Employment estimates for the transportation study area show a 10 percent employment increase from 1970 (30,000) to 1977 (33,000).

Employment categories for Cascade County, August 1979, are as follows:

Agriculture	1,800
Manufacturing	2,000
Construction	2,100
Transportation and Public Utilities	2,200
Wholesale trade	2,800
Retail	8,000
Finance, insurance, and real estate	2,100
Services and mining	6,600
Federal government	2,000
State and local government	<u>3,900</u>
Total Employed	33,500

Unemployment for August was 6 percent, which is identical to the national average for the same month.

The changes that have taken place in the Great Falls economy are reflected in changes in employment from 1971 to 1976. Employment in manufacturing decreased and employment in transportation and utilities remained stable. Employment in wholesale/retail trade, construction, finance, insurance and real estate, and in services increased substantially. Federal government employment stayed relatively stable but employment by state and local government increased.

Housing. Most of Great Falls's neighborhoods are homogeneous in nature, and all are within a 15-minute drive of the downtown area. The majority of new residential development can be found in the northwest section and along the city's eastern and southern boundaries. Residential areas in the southwest section offer a wide selection of especially prestigious homes situated on lots ranging in size from one-third acre to one acre.

Homes on five and ten acre parcels are found outside the city limits to the southwest. Many are situated on gently rolling hills that offer commanding views of the city and river.

Property values have been appreciating over the past several years at 14 percent per year. This appreciation has recently slowed down nationally due to high interest rates and difficulty in obtaining financing. A local effect in the Great Falls area is the high availability of housing, which has resulted from decelerated military programs, employee layoffs, and out-migration.

Funding Sources for Transportation Facilities. The Great Falls Transportation Plan Financial Resource Analysis (Great Falls City-County Planning Board, 1979) identifies potential funding sources which could be used to implement recommended transportation improvements. Potential funding sources for new road construction include Federal-Aid Primary and Urban System funds, Revenue Sharing funds, Gas Tax funds, the City General Fund, the city's portion of Motor Vehicle License fees, bonds, County Road and Bridge taxes, creation of City and/or County Improvement Districts, County Motor Fuel Excise Tax, and other less significant sources.

The report concludes, "Though some of the City's resources already contribute to transportation facilities, i.e., Revenue Sharing and Gas Tax, they do not provide an adequate amount of funding for major reconstruction of existing facilities or construction of new facilities. The County's resources are strained to provide for just the maintenance of the county roadways and thus funds for reconstruction or new construction are not available. Although a County excise tax on fuel would provide substantial new funding, it is unlikely it would receive voter approval in light of the national tendency toward tax reform.

"At this time, local officials and the public apparently feel that major transportation improvements should be totally funded through available Federal-Aid and State matching funds. Of course, it's quite possible that continued public dissatisfaction with portions of the transportation system may pressure local government officials to use a greater portion of revenues for transportation improvements. Unfortunately, discussions with City officials revealed that revenues are not keeping pace with inflation and thus the amount which might be available for transportation improvements is probably decreasing year by year."

Funding advances are available for right-of-way acquisition through the Federal Highway Administration. 23 U.S.C. 108(c) and Public Law 90-495 make provision for establishing a revolving fund to provide advances to states for acquisition of rights-of-way for future construction of highways. The funds are also available for making payments for moving costs or relocation of persons, businesses, farms, and other existing uses of real property caused by acquisition of such rights-of-way on a federal aid project, including relocation of utilities. Funds may be advanced to the state without interest and may be used to pay the entire costs of

right-of-way projects. These advances generally must be paid back within ten years. Actual construction of a highway for which funds are advanced is not allowed to be commenced within two years, but must begin in less than ten years following the end of the fiscal year in which the advances are approved. The use of the funds is predicated upon availability and request by the State Highway Department.

The proposed south arterial is part of the Great Falls Federal-Aid Urban System. The current annual allocation for the Urban System in Great Falls is approximately \$1,070,000. This includes Federal and State contributions. The south arterial is a recommendation of the Long Range Plan of the Great Falls Transportation Plan. As such, no specific amounts of funds have been committed to construction of the project to date. However, the Montana Department of Highways will be asked to apply for advance right-of-way acquisition funds for the project in behalf of Great Falls. The total amount of this request may amount to approximately \$4,000,000 although the initial request will be for \$500,000.

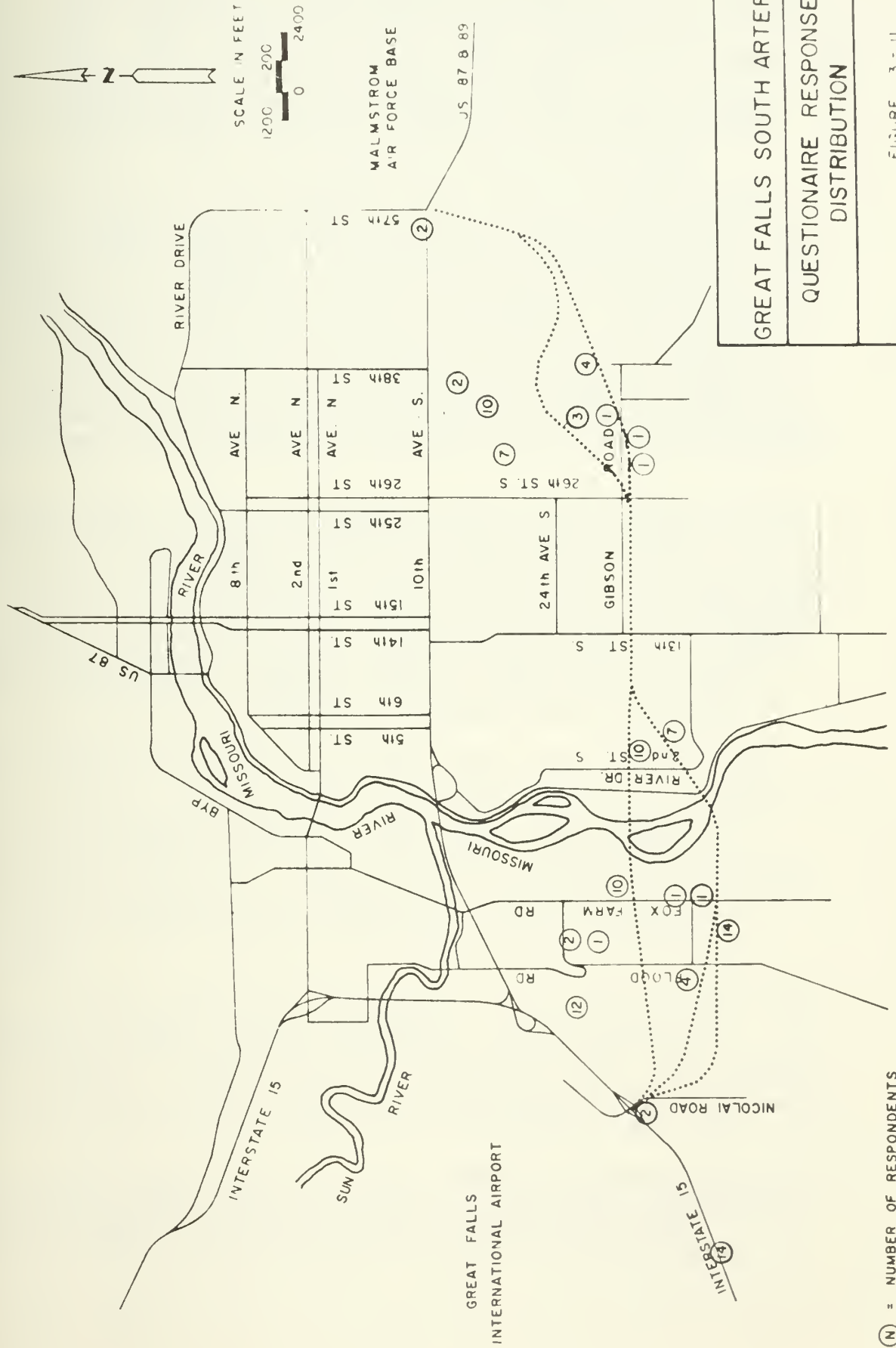
South Arterial Project Area. In an attempt to assess the potential personal socio-economic impacts to individuals within the project area, a comprehensive socio-economic profile of these individuals was developed. Important parameters considered were tenure, individual age, income level and racial or ethnic origin. Real impacts to the livelihood of the elderly, school-age children, the poor, the handicapped or to the minorities would have greater significance than perceived aesthetic impacts of the well-to-do.

A questionnaire was prepared and 500 copies were distributed throughout the proposed arterial corridor to determine the family and community profile of the impacted area. These postage-paid questionnaires were also distributed in residential and commercial areas proximate to the western and eastern project terminus. The Great Falls public library carried 100 copies and they were available at a well publicized public meeting. One hundred thirty questionnaires (26 percent) were filled out and returned. Figure 3-11 shows the number and locality of respondents (those that gave addresses). Most live within the study area. One library copy was returned, indicating either poor exposure or lack of interest on the part of those not potentially impacted by the project.

Social characteristics were analyzed for the responding sample and extrapolated to the community level for the project area. The social profile characteristics which are particularly relevant to measuring the impact of the proposed action, at least on the respondents, are as follows:

- The majority live in single-family residences;
- Very few senior citizens or minorities are represented;
- About half the households have children younger than 19 years old living at home;

GREAT FALLS - MONTANA



GREAT FALLS SOUTH ARTERIAL
QUESTIONNAIRE RESPONSE
DISTRIBUTION

(N) = NUMBER OF RESPONDENTS

FIGURE 3 - 11

- 45 percent of the respondents are employed;
- Over 90 percent of the respondents own automobiles and drive to work. Over 50 percent drive more than 5 miles;
- Less than 5 percent have annual family incomes under \$10,000. 60 percent have incomes over \$20,000 per year;
- Average land tenure of respondents is 5 years; and
- Over 98 percent own their own homes. Over 90 percent of the property values are estimated to be more than \$50,000.

More than 50 percent of the respondents were aware of a proposed South Arterial and many thought it would disrupt their neighborhood (56 percent). Traffic congestion in Great Falls frequently impacted at least 36 percent of the respondents. Forty-four percent said they would frequently use the proposed south arterial. Assessed effects of the south arterial were more positive than negative with respect to activities, access to community facilities, and urban growth. The more negative responses were due to environmental impacts of aesthetics and noise. No discernable group opinion of personal lifestyle or community impacts by each alternative could be discerned from the questionnaire responses. The average number of motor vehicles per family is 2.7; one on the average was a truck.

The general social profile which emerges from the questionnaires is that the project area respondents are young to middle-aged, relatively prosperous, and fairly mobile. The current suburban residential character, or the lack of local business and shopping districts, in the region south of Great Falls suggests that many activity centers are located outside the neighborhood. The location of other community facilities, i.e., schools, hospitals, and community centers, supports the conclusion that residents are fairly dependent upon vehicular movement. Much of this mobility dependency is the result of the area's relatively recent development.

Education facilities available to project area residents include three elementary schools. Junior high and high school education is available via busing to Great Falls public school facilities. School enrollments in Great Falls have been declining in recent years. Other community facilities available in the project area include two designated parklands and a designated school site. Parklands will be discussed in the section titled "Impacts on Section 4(f) Properties." Rural fire and law enforcement protection is provided by contract and the County Sheriff respectively.

There are several private utility lines within the project area including Montana Power Company electrical transmission lines, Mountain Bell telephone lines, Yellowstone Pipeline Company transmission lines, and Great Falls Gas Company transmission lines. Two proposed public utility lines are planned within the project area in local long-range utility improvement plans. A sanitary sewer and storm sewer are proposed for the area.

The south and southwest Great Falls areas experienced dramatic growth rates between 1970 and 1980, with the southwest Great Falls area experiencing a greater percentage of growth than any other section of the City. Preliminary 1980 Bureau of Census population data indicates there has been

a 97 percent increase in population in the southwest area between 1970 and 1980. Residential development in the southwest area was about three times greater than any other section of the City. Based upon existing development trends, availability of vacant land, availability of public utilities, and contiguity with the City limits for annexation to the City, the southwest area of the City provides greater potential for continued future development than any other section of Great Falls.

Impacts.

General Impacts. The proposed project will create both positive and negative impacts to the Great Falls community.

Key benefits of the project are:

- improved transportation and safety;
- reduced traffic congestion;
- improved accessibility and convenience;
- improved 10th Avenue South air quality;
- increased development potential;
- improved economic base;
- improved fire and police protection to the southern areas;
- creation of a scenic highway; and
- planned and orderly development.

Adverse effects of the project are:

- loss of agricultural land, open space and recreational value;
- loss of wetlands, vegetation and wildlife habitat;
- displacement of residences;
- increased noise and air pollution emissions in southerly areas;
- personal aesthetic impacts; and
- decreased property values in several residential areas.

The proposed south arterial will undoubtedly induce some population growth. Commercial development will result in employment opportunities which are long-term in nature whereas actual construction will create short-term employment.

It is anticipated that construction of the south arterial would be staged over a period of ten to twenty years. Construction manpower and time estimates are given in Table 3-2. The construction periods listed in this Table are not additive because of difficulties in projecting actual construction schedules.

Table 3-2
Great Falls South Arterial Construction
for Total Facility

Item	Manpower	Construction Period
Grading	30	20-24 months
Paving	30	12-24 months
Missouri River bridge construction	25-30	24-30 months
Interchange structures (each)	15-20	10-12 months

Source: HKM Associates

Economic Impacts. Measurement of economic impact may be as simple as estimating the change in income in an area, or as complicated as determining the change in the underlying economic structure and distribution of income. Generally, effects may be examined for impact on conditions of income and employment. Any activity that results in some input or output relationship with a local business or individual has an impact on the growth and stability of the regional economy. Direct purchases would have an effect, as would indirect purchases through payrolls.

The proposed south arterial should contribute to the well-being of the local and regional economies. The facility will lower vehicle operating costs, reduce travel time for east-west traffic movement and should lower accident rates. It will cause short range construction related business and employment.

The number of people in Great Falls has remained fairly stable over the past few years but their location is changing as many are migrating from the central city to outlying areas such as the southwest. Economic returns to the community resulting from induced growth from this proposed transportation facility will include increased property taxes and income taxes.

Necessary acquisition of residences and agricultural land for right-of-way will result in tax losses and decreased property values in some environmentally impacted areas. However, the majority of property values will rise due to the increased accessibility, leading to higher tax assessments and property tax revenue for the city and county. Property is appraised by market value according to location, size, school district, and construction material. The city-county assessors office advised that property values would be expected to increase with the construction of a south arterial; however, some properties either severely visually or audibly impacted might have de-valuations.

Transportation links are to business what the blood vessels are to the heart. In Great Falls, currently a stable community, the economic issue is more critical than it would be in a growing community; therefore, transportation links take on an added importance. All major urban areas are experiencing decentralization of retail sales, and Great Falls is no exception to this trend. This decentralization of sales is evidenced by the data available now, and the completion of the Westwood Mall shopping center in northwest Great Falls will increase the degree of decentralization in the near future. The Mall will undoubtedly attract shoppers away from all retail centers in the city and the CBD can expect to experience a decline in its sales activity.

Construction of the south arterial should not result in serious adverse economic effects on the CBD or on 10th Avenue South businesses. Control of access and regulation of land use through proper zoning will prevent the south arterial from becoming another 10th Avenue South, characterized by

strip commercial development. A new facility in the south Great Falls area will remove some of the non-buying through traffic from local business streets. Reduced traffic congestion may cause an increase in the relative importance of 10th Avenue South and the CBD as retail sales and service centers. Traffic entering the business district to shop or to transact other business will be more easily accommodated. Improved accessibility, then, may help to forestall the further decentralization of retail sales that has occurred in the northern Great Falls area. The Great Falls Area Chamber of Commerce strongly supports the south arterial as they feel it will help to alleviate traffic congestion on 10th Avenue South.

The manpower resource requirements will positively impact the employees and the community due to the financial resources gained. The number of required employees will not be enough to negatively create an impact to other employers or to cause secondary housing and public facility utilization impacts. Manpower requirements will largely be satisfied by local employees.

Most community facilities will be positively impacted by the south arterial due to improved access which will also enhance civil defense and fire and police protection to residents in the south Great Falls region. The south arterial could be a significant segment of the defense highway system as its western terminus is close to the Montana National Guard facilities and the Great Falls airport while the eastern terminus is within one mile of the entrance to Malmstrom Air Force Base. This transportation facility would not be as susceptible to blockage by civilian traffic during emergencies as would 10th Avenue South.

One facility which would be negatively impacted by alternate segments 4 and 5 is the County Junked Vehicle Graveyard, which is located one half mile west of 13th Street South and one-and-one-half miles south of Great Falls.

No disruption to religious or health facilities will result from the proposed project. School buses traverse the length of the project on a daily basis. The increased safety and ease of travel afforded by the project will be of considerable benefit to them.

Project Financing Impacts. Completion of the projects in the 1979-1983 Transportation Improvement Program (TIP) will result in a negative urban system fund balance of approximately \$4,628,000. Unless future allocations of Urban Systems funds increase or other funding sources become available, it appears unlikely that construction of the full south arterial facility can be completed by the year 2000. It is doubtful that local revenues will be raised to aid facility construction due to the tax burden on property owners which would result.

To minimize project financing impacts, the south arterial would be constructed in stages with only two lanes and at-grade intersections planned for construction prior to the year 2000. However, adequate right-of-way would be acquired initially to permit the future upgrading of the facility to four lanes with the capability of providing full access control. Early acquisition of right-of-way would protect against the public's future expenditure for escalating property values. Subsequent leasing of properties not needed for immediate construction can provide a return to the project, further reducing the ultimate costs of right-of-way.

For the preferred alternative, Alternative 5-D, the cost of right-of-way acquisition, engineering, and construction of a two lane facility is estimated at \$13,647,800. This is considerably less than the \$30,011,000 estimated for construction of the full facility and should provide adequate system capacity to the year 2000.

Currently, no funding has been committed for construction of the south arterial as initial construction may not occur until around 1990. However, the Montana Department of Highways will be asked to apply for advance right-of-way acquisition funds from the Federal Highway Administration so that acquisition of right-of-way can begin as soon as possible.

Project Area Impacts. The relationship between the general characteristics of the south arterial project area and the impact of the proposed action can be measured following guidelines developed by Marshall, Kaplan, Gans, and Kahn in "Social Characteristics of Neighborhoods and Indicators of the Effects of Highway Improvements" (1972). A major conclusion of that report was that the "residents of low density, suburban type neighborhoods, in which pedestrian dependency is low, and activity locations outside the neighborhood, have a high degree of tolerance for a freeway. In contrast, high-density, pedestrian-dependent neighborhoods, with low levels of automobile availability, strong racial and/or ethnic ties, and neighborhood-centered activities, are not socially feasible for a freeway." Neighborhoods in the proposed south arterial corridor resemble the former type to a great degree. Marshall et al. report that more prosperous neighborhoods typically rank lowest in social integration. However, seventy-seven percent of the questionnaire respondents knew their neighbors. Considering an average tenure of 5 years, this might indicate the existence of tighter community cohesion than anticipated which would increase the adverse effects of physical neighborhood disruption.

A significant variable determining social effect of highway construction projects identified by Marshall et al. (1972) is the degree of physical impact on the neighborhood resulting from the action. It was concluded in the report that "a freeway located at the border of a neighborhood is not likely to result in a decline in neighborhood qualitative indices. If, however, the freeway right-of-way segments or divides the original neighborhood, the residential mobility can be expected to increase significantly and socio-economic level and qualitative indices can be expected to decline."

Restriction of movement and activity flow is a major concern with respect to creating a physical barrier in the form of a limited access arterial. Residents south of the proposed arterial would be separated from existing community facilities such as schools and hospitals. However, because of strategically located access points and grade separations which will permit north-south movement, and the availability of the arterial itself, access to these institutions will not be adversely affected. The net impact will be greater ease of access for automobile commuting residents. Proposed bikeways will facilitate, and actually improve bicycle movements. The

Community Facility Plan 1974 Update considers future facilities for the year 1990 in Great Falls. These developments will further serve to reduce the isolation of the south-lying communities. The proposed facility will improve law enforcement coverage and fire protection service due to reduced response times and better access to the area.

All of the proposed alternate routes bisect one or more officially platted subdivisions. Alternate route segments 4 and 5 traverse Ranchos Grande Vista, Rolling Hills Estates, and the Pearson Addition. Alternate segment 6 divides Ranchos Grande Vista, abuts Grande Vista, and bisects the McClean Garden Tracts. Both alternate segments B and D cross the platted land in the Eaton Addition east of the Missouri River. Lot sizes vary but average about 5 acres in most of these areas. While most of the land has been sold to private individuals, many owners have not yet built their dwellings. Thus, while the proposed arterial corridor does intersect with residential neighborhoods and would negatively impact their physical cohesiveness, the effects are somewhat mitigated by the low-density nature of these suburbs. Questionnaire responses and observation of the alternative project corridors did not identify any ethnic or minority groups which would be isolated or impacted by any of the alternatives.

The proposed project will result in relocation of between 3 and 64 residences, depending on the alternative alignments chosen. These residences range from large, expensive one-of-a-kind owner-built view homes to older style mobile homes. Relocation housing should not have an adverse impact on the housing market in Great Falls due to the time frame over which relocation and right-of-way acquisition will occur. Relocation impacts will be discussed in greater detail in the next section of this Chapter.

The construction of the south arterial will cause relocation of some utilities and will impact their future locations. This impact is minor and could be accomplished with a minimum amount of service interruption to the public. A Great Falls storm and sanitary sewerage improvements master plan was developed in 1972 and is generally compatible with all of the south arterial alternatives.

The U.S. Coast Guard pointed out that any structures over the Missouri River should provide adequate clearance to allow the passage of typical vessels operating in this reach of the River. Recreational boating is the main source of navigational use of the Missouri River in the project area as the Great Falls of the Missouri make commercial navigation impractical. Bridge clearances are well above the 100 year flood elevation and pier spacing will be approximately 200 feet. The proposed crossing structures of all south arterial alternatives will have no significant impact on recreational boating on the Missouri River.

Parks and recreation areas, which are discussed in greater detail in the 4(f) properties evaluation section, are impacted indirectly as a result of the facility bisecting the landscape. The open farmland represents a recreation resource to the local residents. The proposed arterial will be designed to include several sections of bikeway which will promote recreation. These bikeways can be incorporated into the present approved bikeway plan for Great Falls as the area develops.

The project will strengthen ties between neighborhoods, providing access and communication and retaining or improving social interaction patterns. The project will help support projected community development and economic growth.

Secondary Impacts. Construction of any of the south arterial alternatives will have secondary impacts on the central business district and on 10th Avenue South businesses. the Great Falls central business district, which encompasses an area of approximately 50 square blocks, is currently undergoing revitalization. Block development is underway and a new parking structure has been built for 600 cars to help alleviate parking congestion. 10th Avenue South is characterized by strip commercial development with approximately 160 businesses in addition to the Holiday Village Shopping Center. A few residential dwellings, two parks, and the College of Great Falls also abut on 10th Avenue South.

The City-County Planning Department indicates that growth is occurring and will continue to occur in the south and southwest Great Falls area with or without a south arterial. Development plans were recently approved for a neighborhood shopping center in southwest Great Falls along Fox Farm Road to serve this rapidly growing area. Residential development may be accelerated and some commercial development can be expected with construction of a south arterial. However, through control of access, zoning restrictions, and proper planning, controlled commercial and industrial development in the south Great Falls area can occur without significant adverse impacts to the economy of the CBD or to 10th Avenue South businesses.

The development of suburban shopping centers will decrease the viability of any CBD. However, through the Great Falls comprehensive planning process, zoning, land use, public facilities and transportation needs have been planned and projected in consideration of the south arterial, thereby helping to mitigate adverse growth related impacts.

Urban revitalization, energy conservation and environmental protection are all goals of the President's Urban Policy Memorandum dated August 2, 1979. The Great Falls Transportation Plan concludes that the year 2000 recommended major street network, which includes a south arterial, would maximize overall system accessibility and minimize travel time and delay. The recommended major street network will also promote energy conservation through more efficient transportation and a slight reduction in total vehicle miles traveled as discussed later in the Chapter in the section titled "Energy Resources Impacts".

While the south arterial does not provide direct access to the CBD, it will have a secondary effect on accessibility which will help this area to maintain its role as a community focal point and viable regional shopping center. This opportunity, however, is tied to its ability to compete with other types of commercial development, specifically private shopping centers that may locate in the southern Great Falls area to serve the rapidly expanding residential development in the area. New business would increase employment opportunities.

Increased revenues would result from new and increased property taxes in the area. Secondary economic benefits from the project would include "spin-off" effects such as local and regional purchases related to construction materials and manpower expenditures. The impact on the local economy will be minor. One potential adverse secondary economic impact might be the diversion of federal-aid urban system funds from another transportation project.

Construction of any of the south arterial alternatives will significantly alter existing travel patterns in the south Great Falls urban area, resulting in secondary impacts along the north-south arterial routes south of 10th Avenue South. Presently, the flow of east-west traffic is severely impaired by the lack of through streets connecting north-south arterials and collectors serving the neighborhoods, resulting in additional loading of 10th Avenue South. Construction of the south arterial will provide improved access to these developing areas, while at the same time, reducing volumes along 10th Avenue South. Traffic volumes on these north-south routes can be expected to increase near their intersection with the south arterial due to the improved accessibility the south arterial would provide. Similarly, traffic volumes near 10th Avenue South will be lower with the south arterial than without. One exception to this is on 13th Street South. Due to the location of 13th Street South, it will serve as a major access route to the central business district and to the commercial areas on 10th Avenue South from the south arterial. As a result, traffic volumes on 13th Street South will be higher with a south arterial than without. The role of 13th Street South was recognized in the Great Falls Transportation Plan and improvements to this route are recommended in the Plan.

The impacts to the north-south arterials resulting from construction of a south arterial are felt to be beneficial with any of the alternatives due to the improved accessibility and the general equalization of traffic volumes along these routes between the south arterial and 10th Avenue South. Children attending Meadowlark School on Fox Farm Road will benefit from the standpoint of increased safety resulting from reduced traffic along Fox Farm Road in this vicinity. The noise and air quality impacts of the reasonable alternatives will be discussed later in this Chapter.

Socio-economic Impacts of the "No Action" Alternative. The "no action" alternative will do nothing to solve the existing and projected traffic and operational problems on 10th Avenue South and other arterials in the area. Expected increases in vehicles will further increase the traffic operational problems and associated social, economic and environmental impacts such as noise and air pollution.

The "no action" alternative might be more costly when considering or assigning a dollar value to the time and energy resources lost in traffic congestion and by the dollar volume of business lost in the adjacent areas due to shoppers' unwillingness to put up with the congestion. Failure to take steps to meet the projected transportation needs now will likely result in more costly solutions in the future which will have greater impacts on the area.

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Relocation Impacts

Existing Environment. The residential character in the south arterial corridor area west of the Missouri River can be summarized as fairly modern single family residences constructed within the last five years. East of the Missouri, developed areas in the corridor are generally more established. In general, residents in the area of any of the south arterial alternatives are young to middle-aged with very few senior citizens. Income levels of families west of the Missouri River are generally higher than those east of the river. The families east of the river are in the average wage earners income level, with some in a higher bracket. It appears from observation that very few large families reside along the alternate routes. Most of the residents are acquainted with their neighbors and would be disrupted if required to relocate. They exhibit a fair degree of mobility as evidenced by their desire to reside away from community facilities and conveniences. The suburban neighborhood environment is presently not impacted by any major transportation facilities.

Impacts. Displacement from one's home is probably the most severe social effect resulting from an implemented project. The no action alternative would not require any relocations. However, some relocations would be required with any of the south arterial facility alternatives. These are shown on Figure 3-12.

The actual number of residential and commercial relocations required is variable depending upon the specific alignment segment and total route configuration. Table 3-3 lists the various required relocations according to the specific alternate route segments.

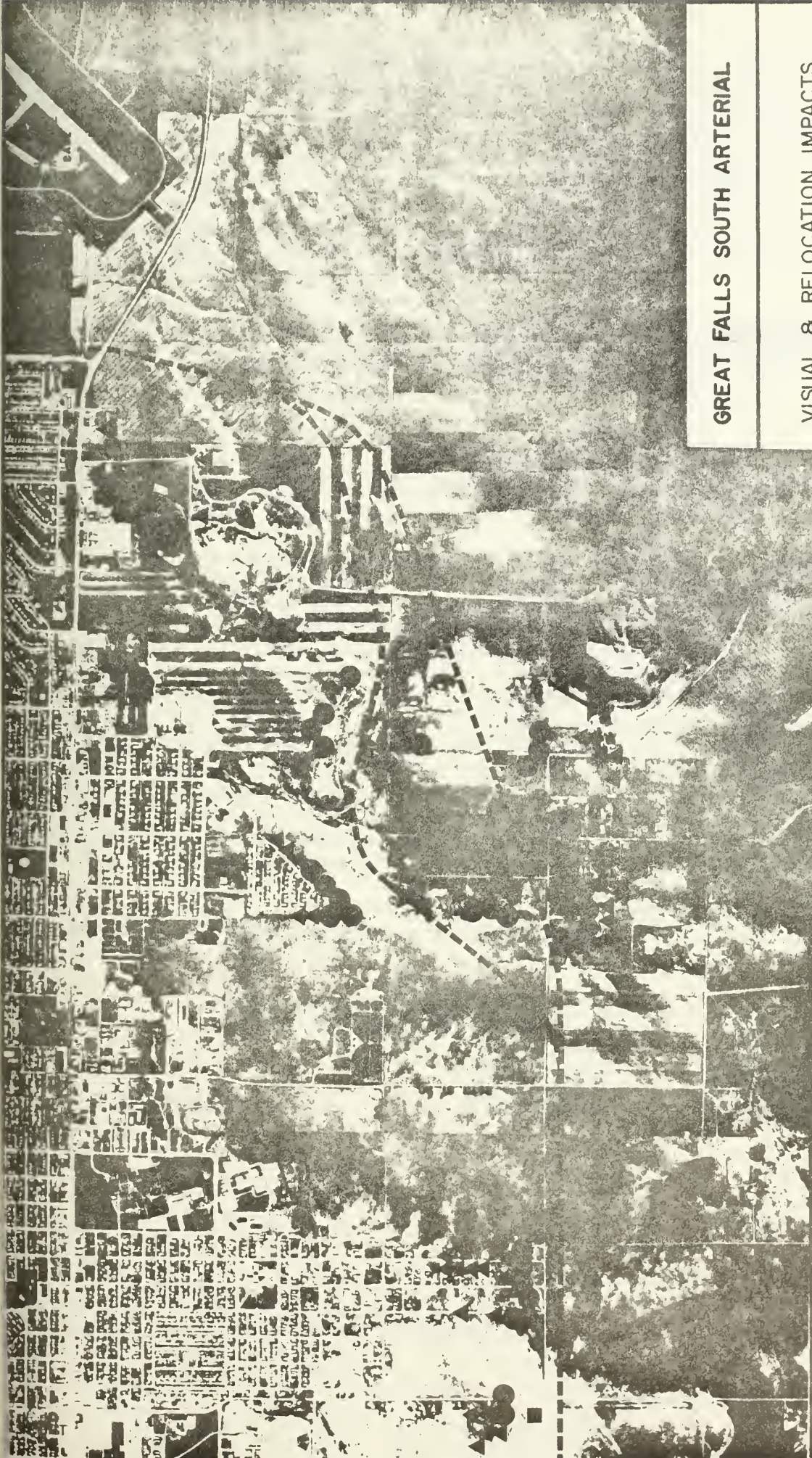
Table 3-3
RESIDENCES AND BUSINESSES DISPLACED BY
SOUTH ARTERIAL ALTERNATE ROUTE SEGMENTS

<u>Alternate Segment</u>	<u>Residential Displacements</u>	<u>Commercial Displacements</u>	<u>Other Buildings</u>
4	3	0	1
5	2	0	1
6	61	4	12
B	2	2	1
D	2	2	0

Source: Montana Department of Highways.

Alternate segment 4 will require the relocation of two residences in the Gore Hill area west of the Missouri River and one residence at the intersection of 13th Street South and Gibson Road. Alternate Segment 5 would require the relocation of one residence in the Gore Hill area in addition to the residence at 13th Street South and Gibson Road.



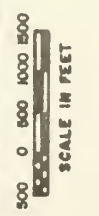


GREAT FALLS SOUTH ARTERIAL

VISUAL & RELOCATION IMPACTS

N = ALT. SEGMENT DESIGNATION **FIGURE** 3-12

- = RELOCATION
- = SIGNIFICANT IMPACT
- ▲ = MINIMAL IMPACT



The most serious relocation impacts would occur under alternate segment 6. This alternate would require the relocation of two residences in the Gore Hill Area and 59 residences and four businesses east of the Missouri River. The alignment would cross the site of the Rivershore Mobile Home Court creating adverse impacts on two levels: the owner relative to her business investment, and the individuals currently renting space at the court. The Rivershore Mobile Home Park has 49 pads and a manager's residence. Vacancies are uncommon as rental pads are \$60 to \$80 per month. The owner estimated a cost of \$4,000 per pad to set up a new court. Two minority people reside in the mobile home park who would have to be relocated to another court along with other residents.

Other businesses to be displaced by Alternate Segment 6 include a crystal shop, masonry shop and a welding shop. Another resident would be impacted in this area due to relocation and an economic loss of his six rental units. In addition, his tenants would be impacted by relocation.

One business west of the Missouri River which would be impacted by alternate segments 4, 5, and 6 is a gas station/rental car agency located at the western terminus of the project on Gore Hill. Relocation is not anticipated and future impacts to this business should be positive.

Alternate segment B will require relocation of two residences in the Gibson Flats area and two businesses at the intersection of 10th Avenue South and 57th Street. Alternate segment D will also displace the two businesses as well as two residences in Gibson Flats. One of the businesses is an auto body shop/used car lot. It is an established business that relocated here in 1978 from another area of Great Falls. Over 70 percent of their business comes from the highway and Air Force Base so that relocating any distance would have an adverse impact on business. The other business facing relocation is a reconditioning shop that cleans cars and engines. It would be impacted if required to relocate more than a short distance from 10th Avenue South. Vacant property west of this shop, as well as other parcels nearby, are available for relocation. Long term positive impacts should result to these businesses if relocation occurs within a short distance of the existing sites.

Table 3-4 summarizes the required relocations of the composite south arterial alternatives and of the "no action" alternative.

Table 3-4
RESIDENTIAL AND COMMERCIAL DISPLACEMENTS
OF THE ALTERNATIVES

<u>Alternative</u>	<u>Residential Displacements</u>	<u>Commercial Displacements</u>
4B	5	2
4D	5	2
5B	4	2
5D	4	2
6B	63	6
6D	63	6
No Action	0	0

Source: Montana Department of Highways

As can be seen from Table 3-4 alternatives 6B and 6D require the most displacements while alternatives 5B and 5D require the fewest. Of course the no action alternative would not require any relocation impacts but would also not satisfy any of the identified transportation needs. If a south arterial right-of-way is not defined or acquired in the near future, the relocation impacts of such a future facility will be greater as development continues south of Great Falls.

Mitigation Measures. All persons or businesses displaced by this project will be eligible for relocation assistance regardless of age, race, color, religion, sex, or national origin. Relocation payments would be provided for moving expenses, housing supplements when indicated, and certain miscellaneous expenses. This will be done in accordance with The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Housing availability in the Great Falls area is currently very good due to the housing boom of the early 70's, the recent wrapup of the Boeing Missile Project, and the Norad and Malmstrom military base layoffs. By the time relocation proceedings would be started, this situation could change. High housing availability reduces relocation impacts because it increases housing selection and location.

Sufficient mobile home rental spaces are available in three existing mobile home parks to accommodate displaced mobile home occupants. Many of the residences to be displaced are relatively new owner-built homes. Consequently there is little replacement housing of a similar kind available. Many are located in low-density developments adjacent to areas with suitable space for building. Local realtors implied that there is currently land available in the general vicinity for building replacement homes. One possible negative effect is that displaced residents will have to relocate slightly farther out of town because growth has and is proceeding from the city limits southward. Land availability in the area at least lessens the adverse impacts associated with long distance moves and allows displaced residents to remain in the proximate area. Children would not have to change schools, and families would not be separated from friends and neighbors to a great degree. With sufficient available housing, land, and mobile home courts in the Great Falls area, it does not appear that it would be necessary to rely on last-resort housing. However, last-resort housing will be provided, if necessary.

The businesses to be displaced are small and can be relocated with business moving payments. There are vacant buildings and properties in the Great Falls area to take care of them. If the Rivershore Mobile Home Park cannot be suitably relocated where their patronage will remain the same the owners would be compensated in lieu of moving expenses.

Visual Impacts

Existing Environment. The south arterial project area is primarily an agricultural area interspersed with residential and commercial development. The Missouri River bisects the south arterial corridor. The topography varies from flat to rugged terrain with the Sun River Bench (Gore Hill) rising over 350 feet above the river valley to the west. Generally, undisturbed vistas can be viewed to the southwest, south and southeast. The City of Great Falls lies directly to the north of the project.

Several areas bisected by the south arterial route alignments have recently experienced residential subdivision. Other areas were subdivided in past years and are presently occupied. Clustered development has occurred where the south arterial crosses the Missouri River and at the western end of Gibson Flats. From the low level of Gibson Flats the City of Great Falls is hidden by the bluff to the north and conversely the lower area of Gibson Flats is hidden from the view of most of Great Falls. Photographs of the south arterial corridor are found on Figures 3-2 through 3-10.

Impacts. Visual impacts of a south arterial facility would vary with the particular route alignment and with the person or persons perceiving the visual impact. Impacts were assessed as a function of distance from either side of a specific alignment proposal. For purposes of this study the critical distance was established at 1000 feet. Residents within that distance from an alignment edge were projected to experience serious or significant visual impacts. Those residents greater than 1000 feet from an alignment or shielded from the facility by other structures were projected to experience minimal or less significant visual impacts. Figure 3-12 identifies visually impacted properties. Table 3-5 quantifies significant visual impacts by alternative route segments.

Table 3-5
RESIDENCES SIGNIFICANTLY
IMPACTED BY SOUTH ARTERIAL ALTERNATIVES

<u>Alternative Segment</u>	<u>Number of Seriously Impacted Residences</u>
4	72
5	73
6	114
B	62
D	31

Source: Brown & Caldwell

y combining the route segments, it can be seen that Alternative 6-B impacts the greatest number of residences. This reflects the close proximity of alternative segment 6 to the residentially developed area

south of the City. Alternative segment B impacts the scattered developments within the western end of Gibson Flats. Alternatives 4D and 5D impact the least number of residences, primarily because alternative segments 4 and 5 are located further from the more heavily developed areas and alternate segment D bypasses the majority of the Gibson Flats development.

Visual impacts will be experienced on both a temporary and a long-term basis. During the construction phase of the project visual impacts will be experienced due to the increased particulate air contamination, the large equipment operations, disturbed land areas, structural siting apparatus and materials stock piles. These impacts will abate when the project is complete.

Alternate segments 4, 5 and 6 will create significant long-term visual impacts to residents living in close proximity to the proposed alignments. New residential development immediately north of Alternate Segment 6 would have the greatest concentration of those visually impacted. Residents living further away will view the project as a break in the topography. Residents living near the Fox Farm Road-South Arterial junction will be visually impacted by the proposed future diamond interchange and overpass. Fox Farm Road would be constructed over the South Arterial.

The overall length of the structure for the Missouri River crossing by alternate segments 4 and 5 (including the railroad crossing) is 1,730 feet. Alternate segment 6 will require a structure about 1,600 feet in length. An additional structure 275 feet in length will be required to cross River Drive and the Burlington Northern Railroad tracks. These structures will be visible from more existing residences than the single structure proposed for alternate segments 4 and 5.

A grade separated interchange would be required immediately for access to 2nd Street South with alternate segment 6 as an at-grade intersection is not practical here. With alternate segments 4 and 5, an initial at-grade intersection can be provided. However, a future interchange is planned at 2nd Street South with these alternatives. The south arterial would cross over 2nd Street South. Again the interchange structure on alternate segment 6 would impact more residences than the structure proposed for alternate segments 4 and 5. Access to 13th Street South and to 26th Street South is at the same locations for all alternate segments, directly south of Gibson Road. Future diamond interchanges are anticipated at these locations with 13th Street South and 26th Street South passing over the south arterial. Visual impacts would not be significant in these areas as residential development is sparse.

Residents in the Gibson Flats area would be visually impacted by either alternate segment B or D; however, alternate segment B would be the most significant. The access location of the south arterial from Gibson Flats could be an extension of 39th Street South which would connect with the project alignments. This new 39th Street South extension would pass under the south arterial overpass and connect with Gibson Road. Visual impacts of the overpass structure would be greater to residents for alternate segment than D.

Upon completion of the project, the right-of-way corridor will be landscaped to be compatible with the surrounding landscape. This will primarily consist of grading and appropriate revegetation. Arterial intersections will be treated in greater detail to lessen the stark impacts of the interchange structures.

The "no action" alternative would not offer any short or long term visual impacts. Uninterrupted vistas may not, though, be ample justification for the action to those would-be users of a south arterial facility. The visual impact of a project is difficult to evaluate because it is a matter of individual preference. A constructed feature may have an adverse impact on a preservationist but may be very attractive to people being served by the facility.

Noise

Describing the Noise Environment. It is appropriate to define a noise environment using a measure or "descriptor", the magnitude of which relates to the adverse impacts of the noise on human activities. Many years of research have resulted in the use of A-weighted noise levels. Essentially, the A-weighting de-emphasizes the low frequency components of a noise and simulates the hearing characteristics of the human ear.

Because the noise of most environments changes with time, it is customary to average the noise level for a given time period. The equivalent noise level, symbolized L_{eq} , provides a noise average which is heavily influenced by the higher noise levels which are experienced. This is appropriate since these higher levels are usually what determine the seriousness of the noise impact. All noise levels presented in this report are therefore A-weighted equivalent noise levels and will be symbolized as L_{eq} in decibels (dB).

The South Great Falls Noise Environment. The area through which the proposed south Arterial will pass is primarily undeveloped open space except in the vicinity of the Missouri River, the Gibson Flats area, and a few bordering residential developments. For the most part it is a fairly quiet area except where streets or arterials pass through it (such as Fox Farm Road, River Drive, 13th Street South, Gibson Road, etc.) and occasional aircraft flyovers, power boat traffic on the Missouri River, and some industrial noise in the Gibson Flats area.

Noise measurements were made at 17 locations in the study area during the time period 9-12 July, 1979. Measurement locations, shown on Figure 3-13, were selected to be representative of the total range of noise exposure experienced in the study corridor, from remote areas distant from any noise source to adjacent heavily traveled arterials. Measured daytime noise levels in decibels ranged from the high 30's to the mid 60's, depending on the proximity of the measurement location to a noise source. The range of measured L_{eq} are shown in Table 3-6.

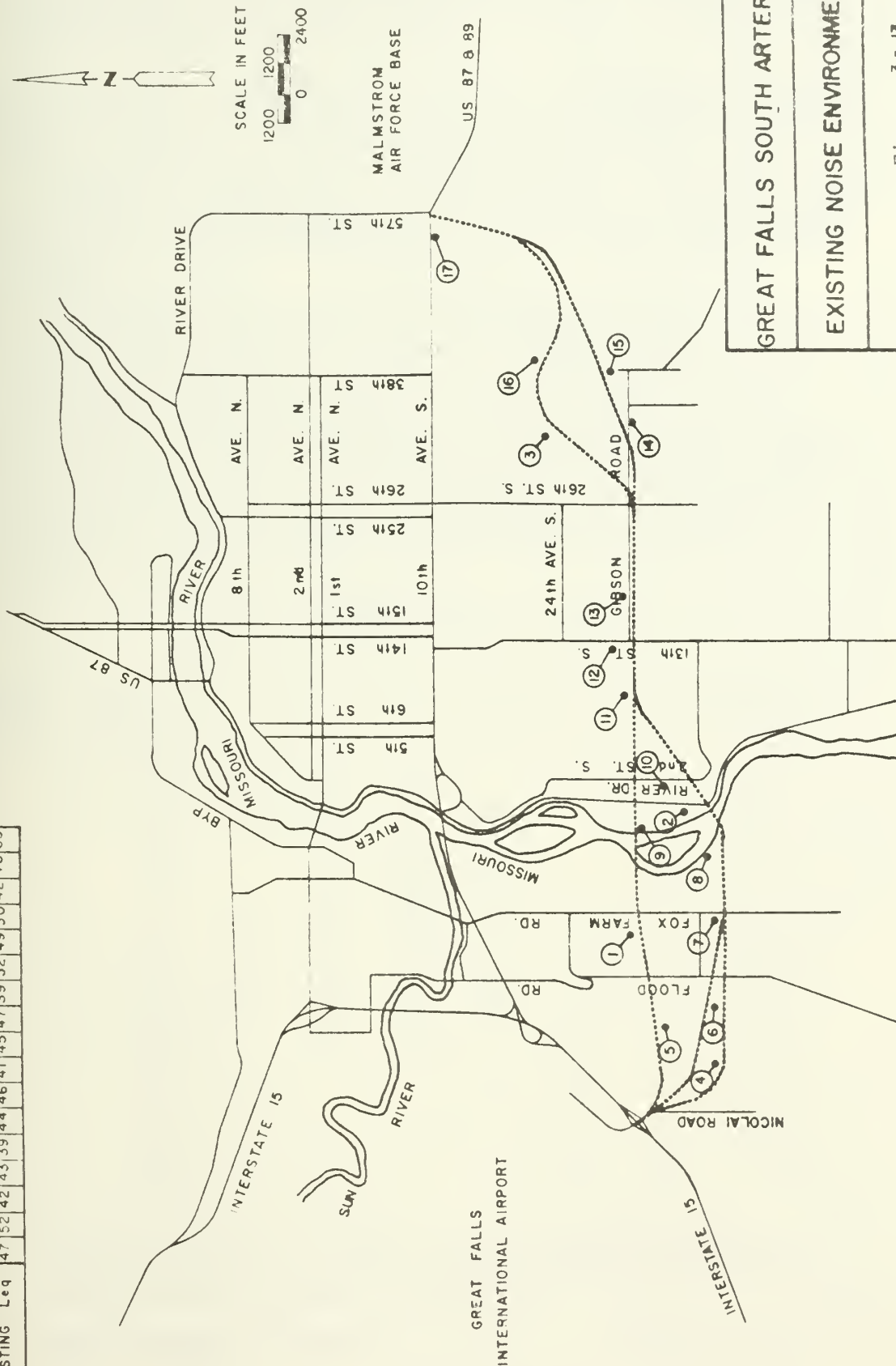
Table 3-6
EXISTING NOISE LEVELS

<u>Location</u>	<u>Range of</u>	
	<u>Measured L , dB</u>	<u>Average L , dB</u>
Undeveloped or edge of developed area, far from arterial	38 - 42	40
Developed, some local traffic	42 - 47	45
Close to an arterial	47 - 52	50
Close to 10th Avenue South	60 - 65	63
Source: Towne, Richards & Chaudiere		

Momentary maximum levels from noisy events will produce higher levels, while lower levels would occur during the early morning hours when traffic and other activities are at a minimum.

GREAT FALLS - MONTANA

SITE NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
EXISTING Leq	47	52	42	43	39	44	46	41	45	47	39	52	49	50	42	40	63



GREAT FALLS SOUTH ARTERIAL

EXISTING NOISE ENVIRONMENT

Figure 3-13

Noise Prediction Methodology. Noise level predictions were prepared for the study area using a computer program based on the methodology described in the FHWA Report RD-77-108, FHWA Highway Traffic Noise Prediction Model, 1978. The methodology is based upon three parameters - traffic conditions, roadway geometry and observer characteristics.

The predictions were based on the year 2000 directional design hour volumes for the AM and PM peak traffic volume hours. The design hour traffic was assumed to be 10 percent of the Average Daily Traffic (ADT) with a 60/40 directional split. The noise model incorporates three classes of vehicles: automobiles, medium trucks and heavy trucks. The medium truck volume was assumed to be 3 percent of the total volume while heavy trucks were assumed to be 2 percent. The observer position was located 5 feet above the ground.

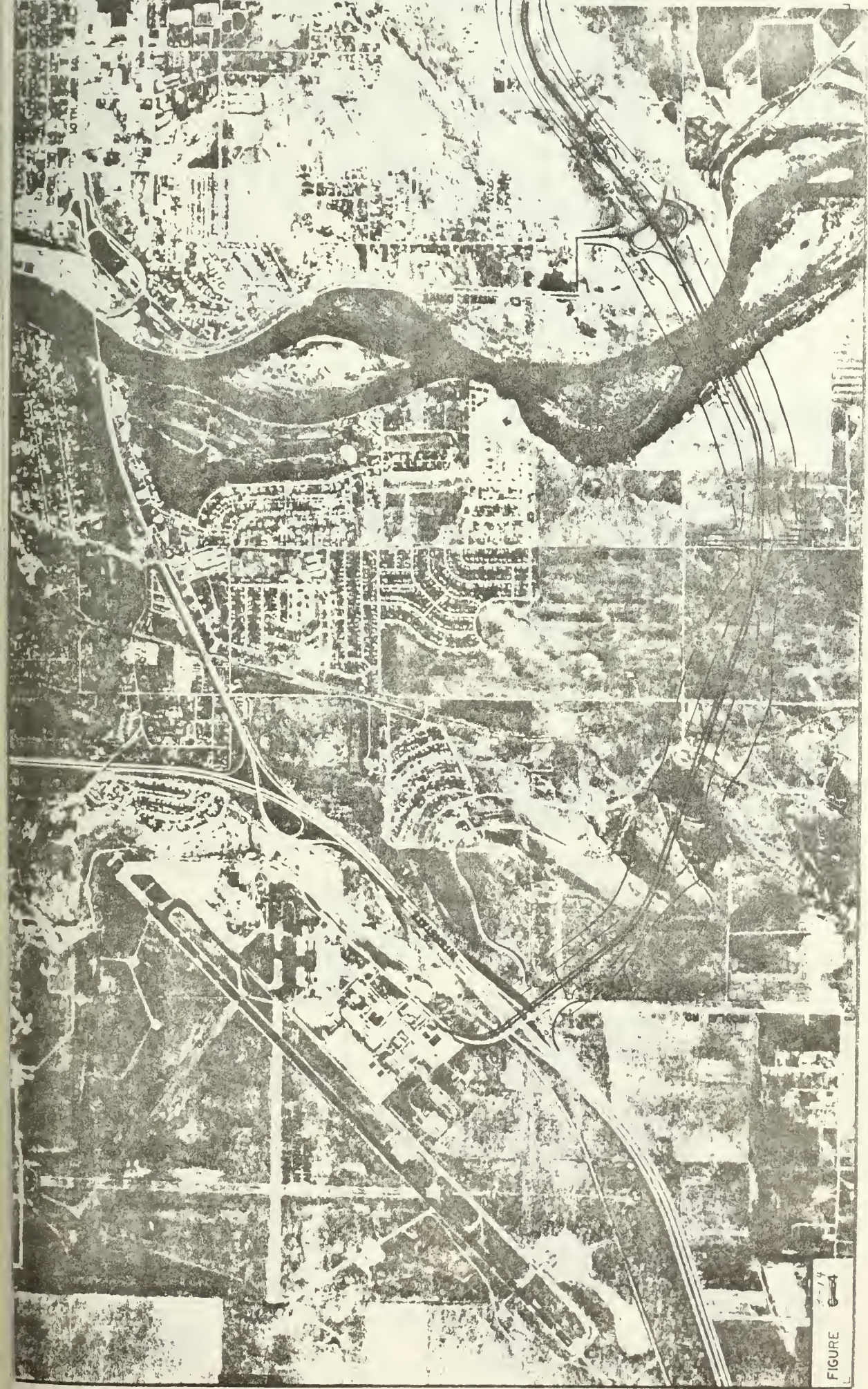
To depict the predicted noise levels along the south arterial, contours of equal noise level were chosen. Since traffic projections for alternate segments B and D are relatively independent of alternate segments 4, 5 and 6, the noise impacts can be more easily discussed in terms of these alternate segments. Alternate segments 4, 5, and 6 extend from I-15 to 26th Street South and alternate segments B and D extend from 26th Street South to 57th Street. Table 3-7 lists the existing and predicted noise levels at each measurement site for each alternative, including the "no action" alternative. Noise contours for the preferred alternative, alternative 5-D, are shown on Figure 3-14.

Table 3-7
EXISTING AND PREDICTED NOISE LEVELS*

Measurement Location	Existing	4	5	6	¹ eq, dB B	D	No Action
1	47	-	-	60			49
2	52	53	55				54
3	42				-	57	42
4	43	60	53	-			45
5	39	-	50	65			41
6	44	57	57	-			46
7	46	60	60	-			51
8	41	52	53	-			41
9	45	-	-	63			46
10	47	55	55	55			53
11	39	50	50	57			41
12	52				60	60	54
13	49				59	58	52
14	50				57	-	53
15	42				58	-	42
16	40				-	56	40
17	63				63	63	65

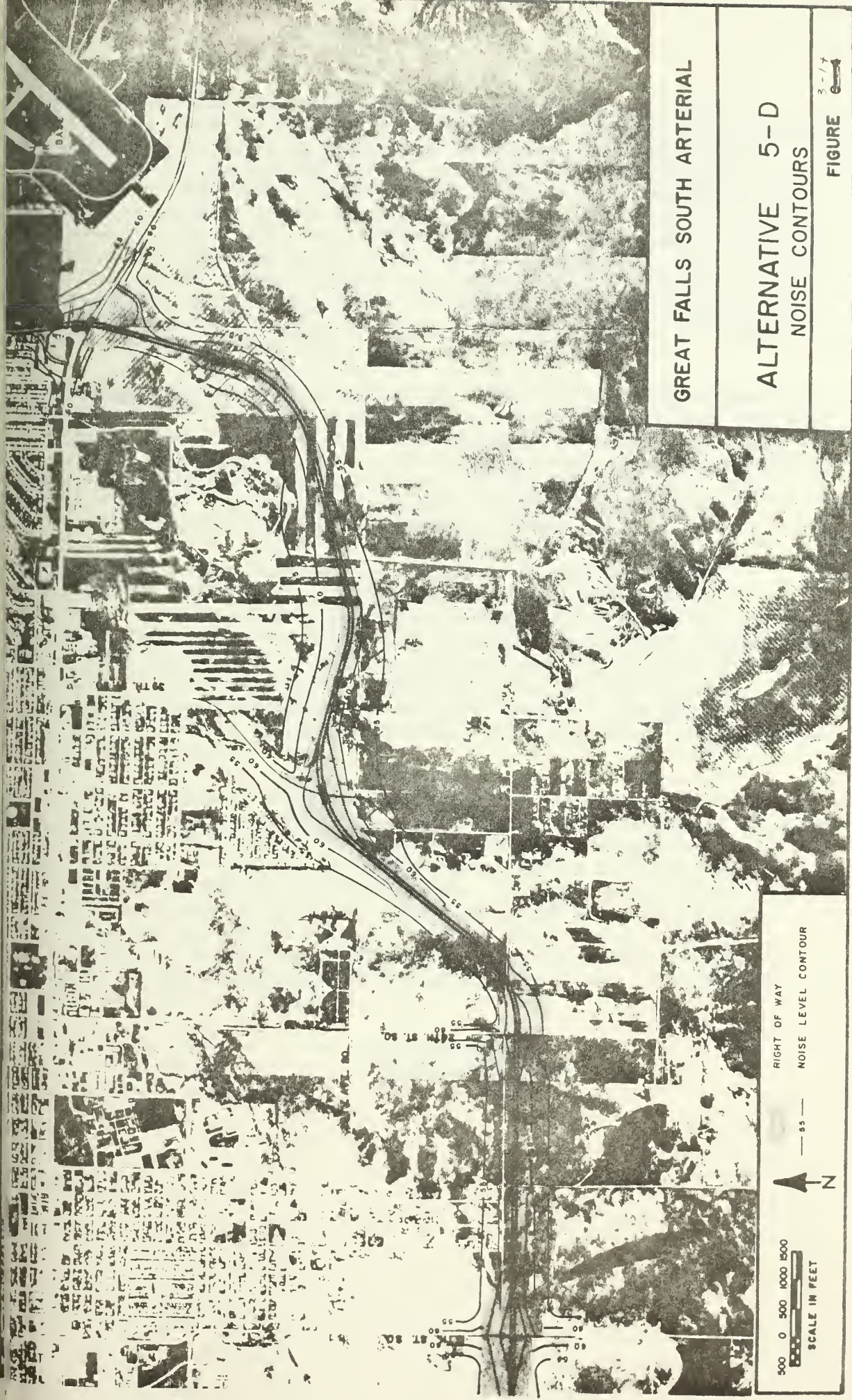
Note: Entries made for positions near alternates 4, 5 and 6 or alternates B and D. A dash indicates position so far from alternate that level is near existing.

Source: Towne, Richards & Chaudiere



FIGURE

2-14



GREAT FALLS SOUTH ARTERIAL

ALTERNATIVE 5-D
NOISE CONTOURS

3-17
FIGURE 6-1

It must be noted that the predicted noise levels for the "no action" alternative in Table 3-7 may vary depending on the intensity of development and traffic volumes near the measurement locations. The "no action" alternative would require the existing streets, with some upgrading, to carry the increased traffic in the year 2000. With this increased traffic will come higher noise levels in the proportion of 3 dB for each doubling of the traffic volume and thus 6 dB for quadrupling the volume. Table 3-8 contains a list of the major arterials, their existing ADT, their year 2000 ADT for "no action" and the predicted increase in noise level due to the traffic volume increase. The Table also contains the major arterials Year 2000 ADT for alternate segments 4, 5, 6, B and D, as well as the predicted increase over the existing noise level.

Noise Evaluation Standards and Guidelines. There is existing residential land use around the proposed south arterial and it is anticipated that much of the area around the arterial will be developed as residential. As a result, it is necessary to evaluate the adverse impact that the predicted traffic noise will have on the residents and their activities. Two criteria are used to evaluate this impact - the FHWA Noise Control Standard and the EPA Guideline for Permissible Increases.

The FHWA Noise Control Standard (23 CFR Part 772) imposes maximum permissible L_{eq} noise levels for specified land uses and traffic conditions. A summary of these design levels is shown in Table 1 of the Standard. The residential areas will be subject to activity category "B" design noise level L_{eq} of 67 dB. The standard also recognizes that noise impacts can be expected when the predicted traffic noise levels are substantially higher than the existing noise levels. Although "substantially" is not defined, increases greater than 10 dB are assumed to fall into that category.

The EPA has established guidelines (April, 1973) for assessing the impact of an increase in noise levels. Most people will tolerate a small increase in background noise level (up to about 5 dB) without complaint, particularly if the increase is gradual over a period of years (such as from gradually increasing traffic volumes). Increases greater than 5 dB may cause complaints, particularly if the increased levels are causing interference with speech or sleep. Increases above about 10 dB (corresponding to a doubling of judged loudness) are likely to cause complaints and should be regarded as a serious condition. The increase criteria are summarized below:

Up to 5 dB	Minimum Impact
5 to 10 dB	Significant Impact
Greater than 10 dB	Serious Impact

Table 3-8
NOISE INCREASE ALONG MAJOR ARTERIALS

Street	Exist.	Daily Traffic			Noise Increase, dB		
		No Action	4 & 5	6	No Action	4 & 5	6
oc. Road	595	6,995	2,799	3,251	11	7	7
arm Road project	2,728	8,751	6,846	12,321	5	4	7
arm Road project	2,728	8,751	12,570	13,194	5	7	7
St. So. project*	430- 1,462	1,920- 9,978	10,928	13,063	6-8	9-14	10
St. So. project	430	1,920	778	2,415	6	3	7
St. So. project	3,566	6,175	10,534	11,494	2	5	5
St. So. project	3,821	6,367	5,014	5,852	2	1	2
Ave. So. 9th So.	24,332	37,381	18,886	16,964	2	-1	-2
			<u>B</u>	<u>D</u>		<u>B</u>	<u>D</u>
St. So. project	2,244	4,450	6,776	5,011	3	5	3
St. So. project	0	0	1,792	4,541	0	-	-
St. So. project	0	0	1,002	271	0	-	-
Ave. So. 57th So.	10,631	15,931	8,257	8,835	2	-1	-1
Ave. So. 57th So.	5,491	8,705	8,699	8,699	2	2	2
Street So. project	7,994	11,923	13,904	12,409	2	2	2
Ave. So. 26th So.	33,154	42,304	30,130	29,677	1	0	0

Note: *Traffic volumes varied north of the project within the range stated.

Source: Towne, Richards & Chaudiere

Noise Impacts. Examination of predicted noise level contours shows that none of the south arterial alternatives produce noise levels which exceed the FHWA standard of 67 dB beyond the right-of-way (R/W). However, a comparison of predicted noise levels and existing levels shows some serious impacts where an increase of more than 10 dB occurs.

In some of the areas near the right-of-way where the predicted noise levels range between 60 and 65 dB the increase over the existing in undeveloped areas (20-25), developed areas (15-20) and areas close to an arterial (10-15) will exceed 10 dB resulting in a serious impact. Where the predicted noise levels are between 55 and 60, only in the undeveloped areas (15-20 increase) and the developed areas with some local traffic (10-15 increase) will there be serious impact. At the locations further away from the arterial or in the vicinity of a depressed section where the predicted levels are 55 dB, only the undeveloped areas with an increase of 15 dB will experience a serious impact.

Since alternate segment 6 carries more traffic than alternate segment 4 or 5, the predicted noise levels along alternate segment 6 are somewhat higher than those of alternate segment 4 where both have a similar configuration, such as elevated sections. Since alternate segment 6 passes through more developed areas than do 4 or 5, it is not likely to produce quite as many increases greater than 15-20 as would the other alternates which go through more undeveloped areas with their lower noise levels. However, alternate segment 6 will adversely affect more people since it travels through more populated areas than do the other alternates.

If a south arterial alternative is implemented, it will probably be built in phases as the south Great Falls area becomes more populated. Areas that are presently undeveloped with low noise levels may become developed by the time the south arterial would be built, reducing somewhat the impacts resulting from noise increases. If the undeveloped areas were treated as developed then the maximum increases would be in the range of 15 to 20 dB rather than 25 dB. This would require a maximum noise abatement of about 10 dB to meet the criterion of not exceeding a 10 dB increase.

A comparison of the noise increases along the major arterials for all the alternates shows that alternate segments 4 and 5 produce lower noise increases than the No Action alternative for slightly more than half of the arterials while alternate segment 6 produces lower noise increases than the No Action alternative for slightly less than half the arterials. The noise increases for alternate segment D are about the same as for the No Action alternative except for 10th Avenue South, which is lower for alternate segment D. The increases for alternate segment B exceed that for the "no action" alternative only along 26th Street South, the rest being the same except for 10th Avenue South which is lower.

There are expected to be some noise impacts during construction. These impacts and methods which will be employed to minimize the impacts are discussed in the section titled "Construction Impacts".

mitigation of Traffic Noise. Although the FHWA Design Noise Level of 67 dB has not exceeded the predicted noise levels do exceed the existing by more than 10 dB in some areas. Therefore it would be appropriate to consider noise abatement measures to reduce the traffic noise impact from the material. A number of noise abatement methods are available which include noise control at source and observer, additional right-of-way acquisition, landscaping and barriers.

Noise abatement not integral with highway design includes noise control at the source and the observer. The noise source can be controlled by enacting legislation to control the noise emitted by cars and trucks. Since trucks are often the dominant noise source, lowering the exhaust stacks of trucks would also reduce the heights of barriers required along a highway. Noise control at the receiver would include proper zoning along newly constructed highways to reduce future noise impact. Improved outdoor-to-indoor noise reduction, such as double-glazed windows, would also protect the observer.

Purchase of additional right-of-way can be effective in preventing future sensitive land use from developing directly adjacent to a highway. Unfortunately the additional land needed is usually great, making it a rather inefficient method of noise abatement. For example, if the equivalent distance from the highway to the right-of-way fence is initially planned as 200 feet, then this must be increased to 400 feet to gain only 3 to 4 dB additional reduction in noise at the fence. Generally the increased distance alone will not provide enough reduction to justify the cost.

Occasional trees and hedges have aesthetic and psychological value as partial visual barriers of highway activity, but they provide negligible attenuation of sound. Dense growths of trees and shrubbery can provide a significant amount of attenuation. For example, a 100 foot depth of tall trees and shrubbery, such that no visual path exists through it, would provide up to 5 dB of attenuation. To be effective in both winter and summer, there should be a predominance of evergreen trees.

A roadside barrier may consist of a wall, an earth berm, or a combination of the two. To be effective acoustically, a barrier must satisfy the following requirements:

- it must weigh at least 3 lbs. per square foot;
- it must not have any holes, cracks, or other opening, i.e., it must be air-tight, including the joint along the ground; and
- it must be of sufficient length and height (see following).

In order to be effective a barrier must block the line of sight between the observer and the noise source. The degree of effectiveness is dependent on the amount the barrier extends above the line of sight, i.e., the higher the barrier, the more attenuation it provides. A practical limit for barrier attenuation is on the order of 15 dB. To achieve any more attenuation would require impractically high structures.

ome noise reduction can be incorporated into the highway design by depressing the roadway so that the top of the cut acts as a barrier. The same is true for an elevated roadway in that if high enough, the shoulder's edge acts as a barrier for an observer below the highway, although as one moves back from the elevated roadway, its effectiveness as a barrier decreases. In general, elevating a roadway is not a good method of noise abatement since the visual impact of the structure may outweigh any acoustical benefits.

Since the existing corridor of the preferred alternative (alternative 5-D) is largely undeveloped or sparsely developed, noise increases greater than 10 dB can be expected along much of the alignment adjacent to the right-of-way. However, due to the small number of existing receptors adjacent to the right-of-way, it is not felt that noise attenuation methods such as additional right-of-way, dense vegetation, or high barriers could be practical, particularly since the FHWA standard of 67 dB beyond the right-of-way will not be exceeded. Consideration will be given to construction of earth berms and/or walls in the project design and such measures will be employed where practical to minimize noise increases to existing receptors resulting from the south arterial. Additionally, zoning restrictions and subdivision regulations to minimize exposure of future receptors in the affected area to significant noise will be considered by the City-County Planning Department.

Land Use and Zoning

Existing and Projected Land Use and Zoning. The corporate limits of Great Falls encompass 10,415 acres which includes 3,100 acres for streets and 500 vacant acres. Public parks occupy 700 acres within the city. Public buildings occupy another 15 acres and include the community civic center, city hall, the courthouse, and fire stations. Public and private schools from the elementary to college level occupy another 300 acres.

5,000 acres are used for residential purposes. The city has zoned more land for commercial and industrial uses than is being used for those purposes. There are 300 acres zoned for commercial use of which only 100 acres are being used commercially and the remainder is in residential use. The city has zoned 400 acres for industrial land use but only 100 acres are actually in use for this purpose with the remainder in commercial and residential use.

1970 land use and projected 1990 land use from the 1970 Great Falls Area Comprehensive Plan are shown on Figures 3-15 and 3-16. Growth in southern Great Falls is anticipated with large increases in single and multi-family residential land use. The area south of the Sun River and 10th Avenue South is projected to have a population increase from 11,000 in 1969 to 38,000 by the year 1990 and land use acreage as shown in Table 3-9.

Table 3-9
LAND USE IN SOUTH GREAT FALLS

<u>Type of Use</u>	<u>1969</u> <u>acres</u>	<u>1990</u> <u>acres</u>
Single-family residential	960	2,066
Multi-family residential	27	449
Commercial	184	318
Public	2,062	3,826
Park and Recreation	203	233
Industrial	753	778

Source: 1970 Great Falls Area Comprehensive Plan

The existing land use outside the city limits and within the south arterial project area is shown on Figure 3-17. Five major types of land use are depicted, with agricultural or vacant land dominating. Existing zoning in the area is featured on Figure 3-18, with agricultural and residential use dominating. For the most part, existing land use conforms to county zoning regulations.

Changes involving transportation systems often induce changes in the pattern of land use and create compatibility problems with adjacent uses. To decrease these land use conflicts, early planning and orderly controlled development are essential. The 1970 Comprehensive Plan described a proposed southside bypass road in its Transportation Plan and Land Use plan. This bypass road was somewhat north of the current proposed south

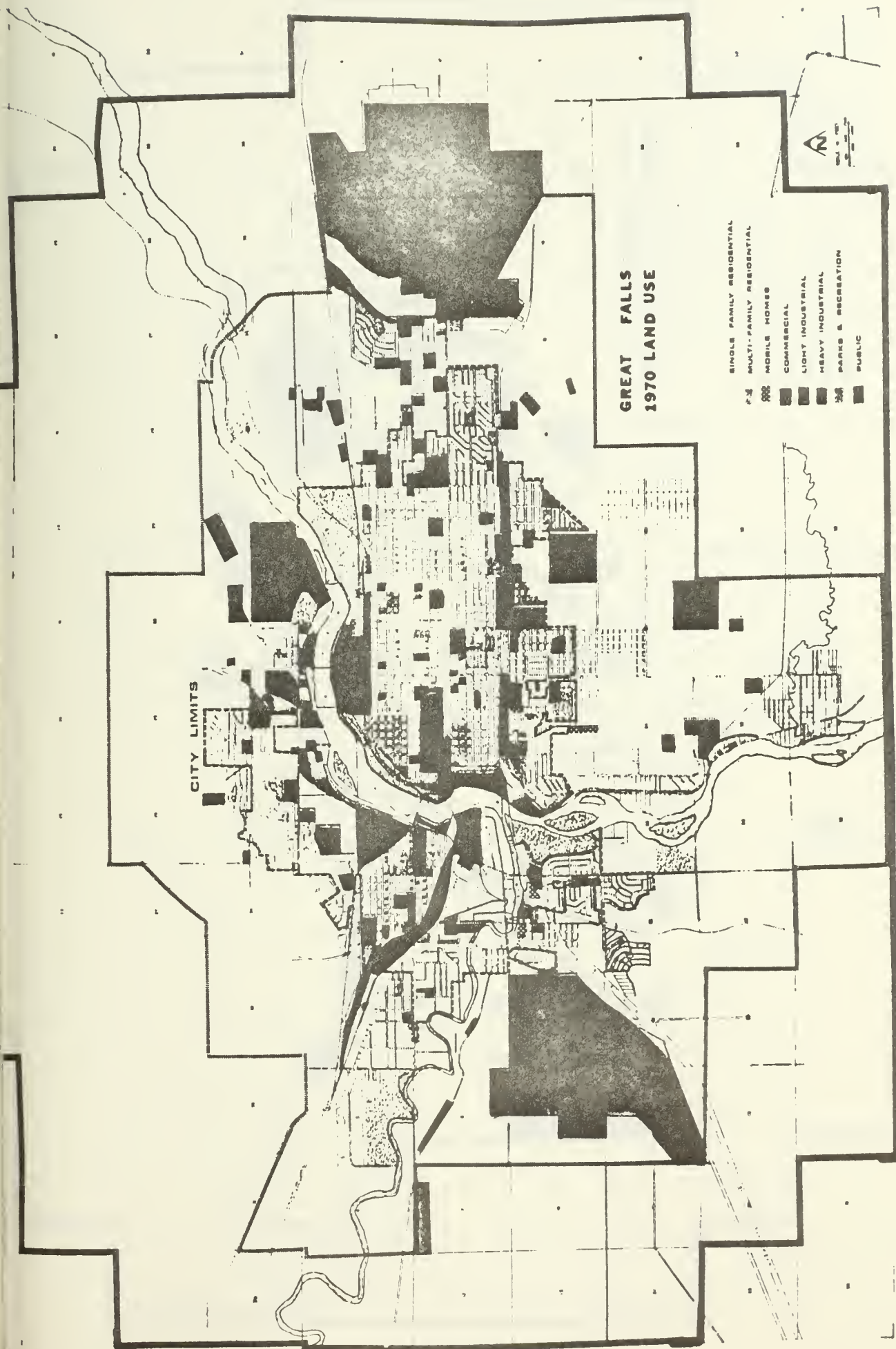


FIGURE 3-15

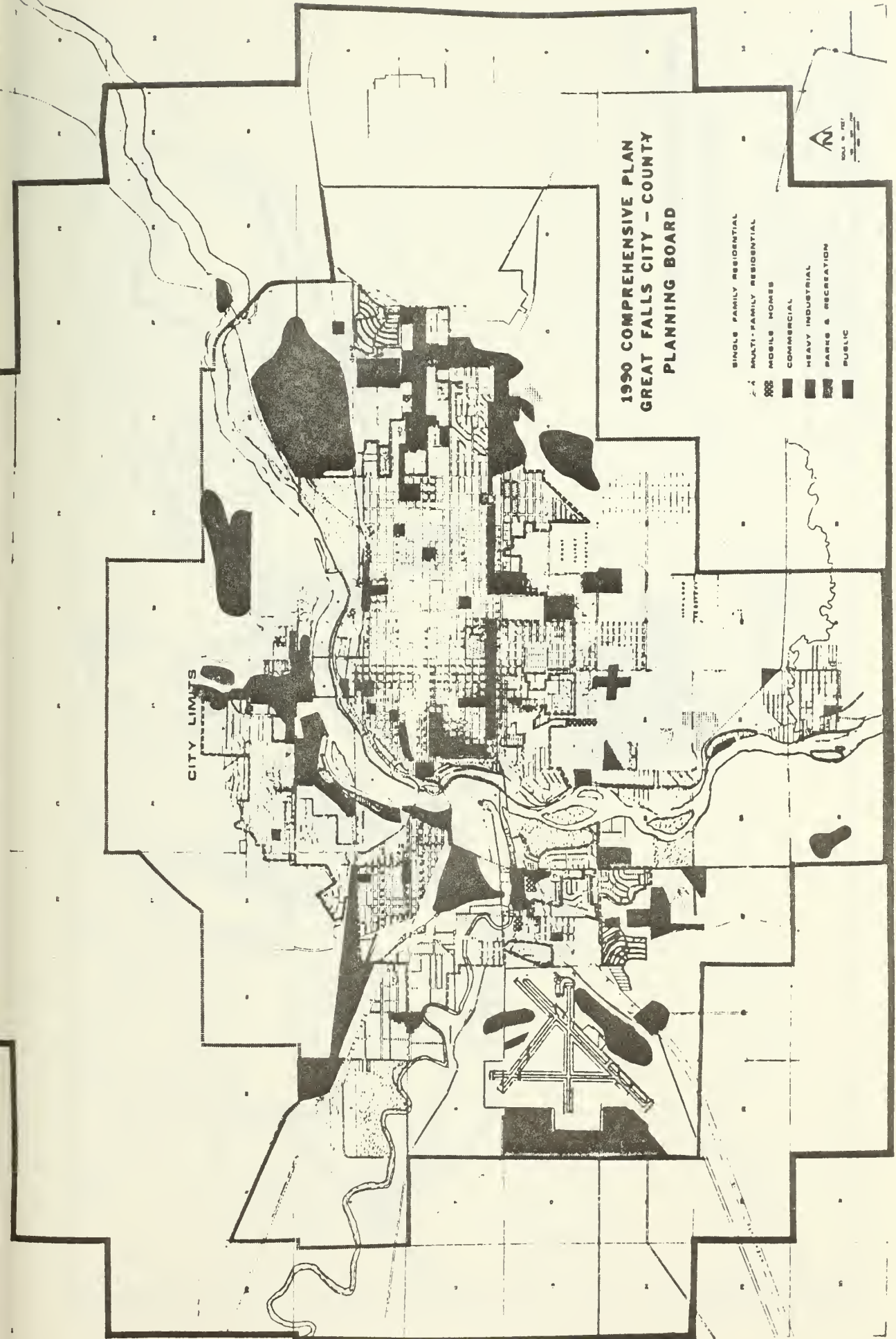
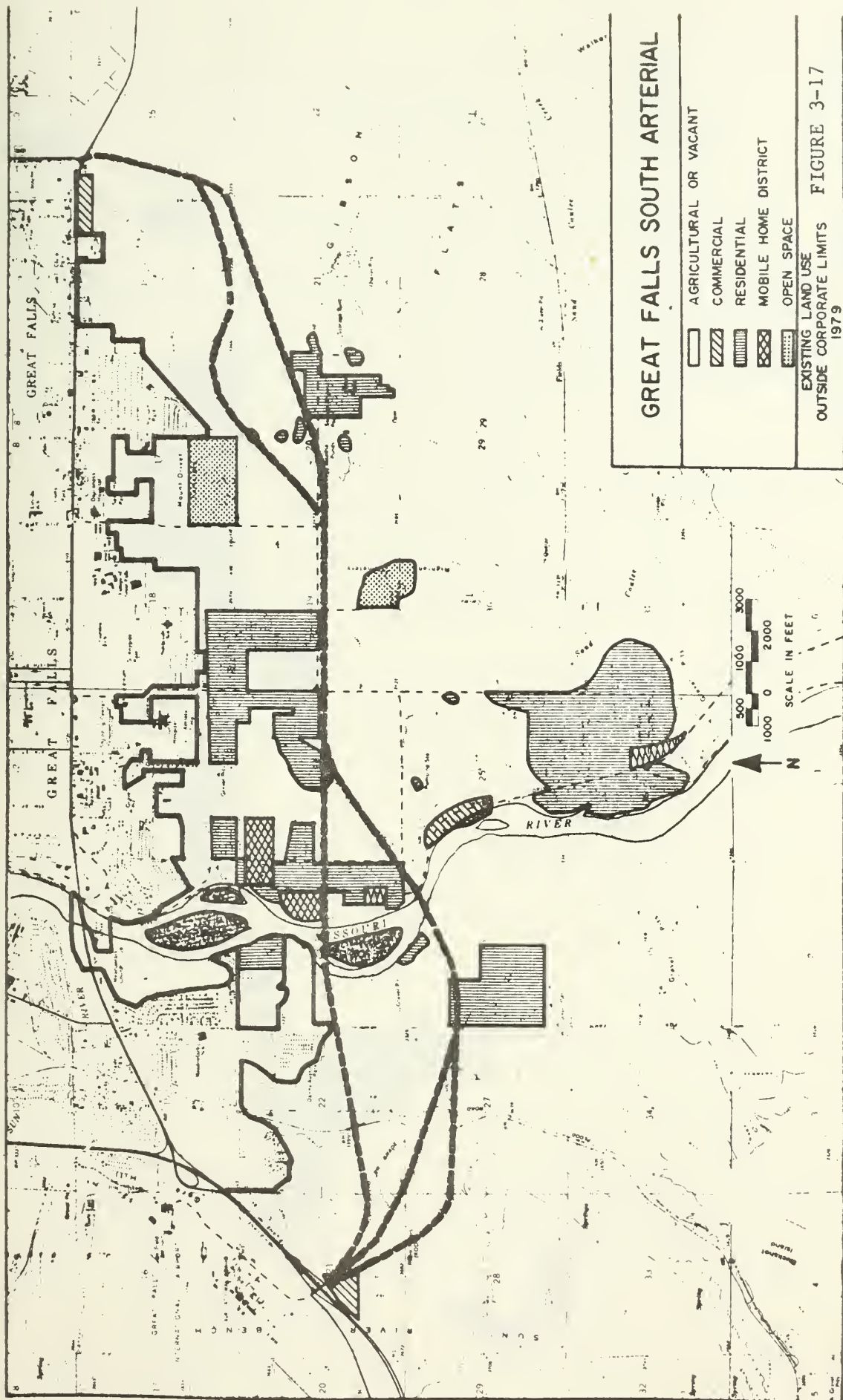
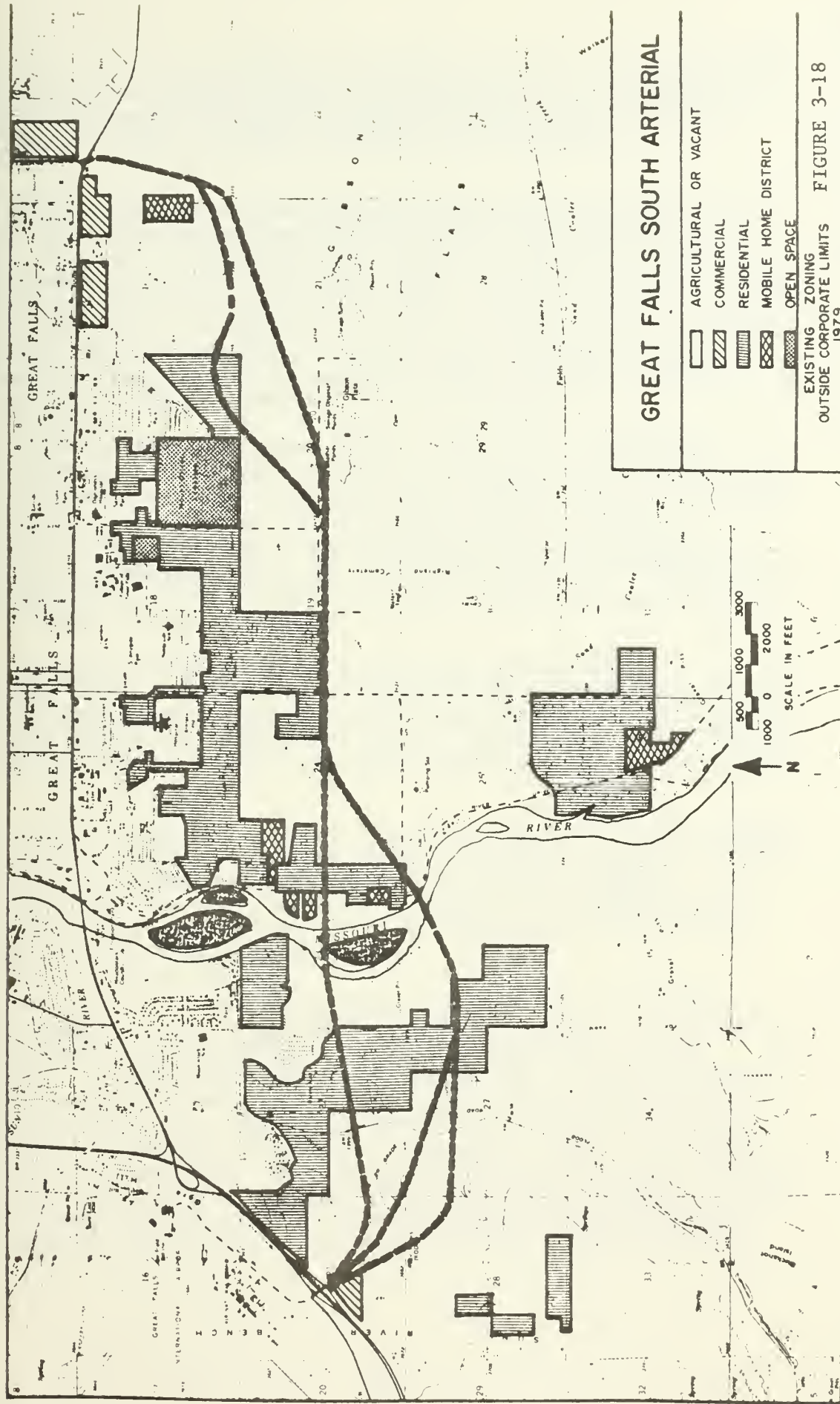


FIGURE 3-16

PROJECTED LAND USE CHANGES FROM 1970





arterial alternatives. The 1970 Comprehensive Plan states that residential development would be partially guided by the location of this bypass. A high rate of suburban development was expected to occur with commercial development anticipated at major north-south arterial-bypass intersections.

Existing land use and zoning have therefore been influenced by the 1970 Comprehensive Plan. However, due to the undefined south arterial alignment, residential development has occurred at random and conflicts with the proposed alternative alignments exist at several locations. Even more land development might have occurred with annexation into the city had it not been for the past inability of the city to fulfill water and sewer requirements. However, municipal utilities are now available to much of the undeveloped land south of the corporate limits and major utility extensions are planned to accommodate future development.

The City of Great Falls strongly enforces a policy of not extending municipal services (sanitary sewer, water, storm sewer) unless the property under consideration is annexed into the City. Continuation of this policy will assure municipal services will be available at the time of development. Proportionately, a very low percentage of development (residential or otherwise) within the Urban Area takes place outside the city, primarily due to the inability to obtain adequate water supplies and properly handled sewerage discharges.

The year 2000 land use plan for the Great Falls area indicates approximately 25 to 30 percent of the housing stock required to support the anticipated population increase will be located in the area south of 10th Avenue South and west of the Missouri River. In addition, another 20 to 25 percent will be located south of 10th Avenue South and east of the Missouri River.

Impacts. Land use impacts resulting from construction of a south arterial are of long-term significance. Some areas will be more seriously impacted than others, such as existing residences, wetlands, and cropped agricultural land. The proposed action will not have as significant an impact on existing zoning or land use as it might have, had it not been considered in the 1970 Comprehensive Plan.

Alternative 4-D would utilize the greatest amount of land, 493 acres. Alternate segments 4 and B would impact the largest amount of agricultural land currently in use. Due to poor reclamation suitability such as permeability, salinity/alkalinity, water erodibility, or rock and gravel, alternate segments 5 and B may actually impact the greatest amount of valuable agricultural land. One farmer currently farms a majority of the agricultural land impacted by alternate segments 4, 5 and 6. He stated that the soil on Gore Hill is shallow and sandy while the lands down in the Fox Farm area are excellent. He currently grows wheat and barley and may plant some sod. Only two families farm extensively in the Gibson Flats area. One mentioned that bad water quality problems affecting several

areas of their land have curtailed their ability to farm them. One landowner in Gibson Flats does not farm his land, but has a small herd of cattle. Each alternative bisects several sections of farmland, making access roads necessary.

If parcels of agricultural land are severed, they might be less farmable from an economic standpoint. Not only might some of these "remainder" units be lost to agricultural production, but development pressures might make them prime candidates for residential or commercial development. The farmland that would be acquired is an economic resource as well as a natural resource.

The U.S. Soil Conservation Service was consulted to determine the existence of any prime or unique farmlands in the project area. In the southern part of Great Falls, those areas not under irrigation are not considered unique or prime farmland. Most of the lands which are under irrigation, however, are classified as unique or prime farmland. The only agricultural land in the project area which is considered prime or unique is located west of the Missouri River in the north 1/2 of Section 26-T20N-R3E. This farmland would be crossed by both alternate segments 4 and 5, with either alternate segment requiring the taking of approximately 13 acres for right-of-way. The existing irrigation system would be modified under these alternatives to permit the continued irrigation of the balance of the farmland not needed for right-of-way.

Commercial land will be impacted at the eastern and western termini of the project. Residential land use is adversely impacted by alternate segment 6 where it crosses between River Drive and 2nd Street South as many houses and mobile homes are located in this area. Alternate segments 4, 5 and 6 impact rivershore wetlands areas of the Missouri River, while alternate segment D negatively impacts wetland areas below the bluff on the north edge of Gibson Flats.

The proposed roadway is not expected to substantially change future land use plans. Patterns of land use, such as commercial development, will undoubtedly evolve around this proposed transportation facility. However, some of the problems connected with development along 10th Avenue South will be avoided with access control on the South Arterial. Also, definition of a south arterial alignment will enable future land use development in this area to be better coordinated with the future land use plan for Great Falls.

There is a major conflict with future plans between alternate segment 6 and proposed park development of Taylor Island and the proposed river frontage park (state owned) immediately to the west (Lot 6, Section 23, T20N, R3E). Alternate segment 6 will also adversely impact two tracts of land now set aside for public use. One tract is owned by the Great Falls public school system for a school site and contiguous thereto is another tract reserved for park purposes. The use of the school site must be coordinated with park development in conformance with state laws prescribing the ratio of school buildings capacity to land contiguously available for school-related activities.

Suburban development is expected to continue moving southward from the city of Great Falls as the need for additional residential lots develops and will undoubtedly occur whether the project is implemented or not. However, the rate with which it occurs will change as improved accessibility to the southern areas will make it more desirable for development. Significant residential development in the southwest areas of Great Falls already exists because of the area's urban proximity, the availability of large view lots, and lower taxes. This area is expanding more rapidly than areas around Great Falls which have flood problems, noise problems (Air Force), soil problems (bentonite and gumbo), or such a deep water table that the cost of drilling is prohibitive.

Western Properties Associates have purchased for future residential development 120 acres in Ranchos Grande Vista #1 in the E 1/2 of Section 22, T20N, R3E, between Fox Farm Road and Flood Road. Alternate Segment 6 divides this tract into two parcels neither of which, according to the developer, could be properly and economically developed as residential or commercial property so divided. This firm is also the developer of the Fox Farm Addition to Great Falls in the NW 1/4, Section 23, T20N, R3E.

Ranchos Grande Vista Subdivision is a platted and developing area west of Fox Farm Road that would be crossed by alternate segments 4, 5, or 6. This subdivision totals 320 acres and is divided into 10-acre minimum size lots. At the time this subdivision was platted, the approval of the City-County Planning Board was not required as state statutes allowed subdivision of agriculturally zoned land into 10 acre parcels without such approval. Under present statutes this minimum parcel size has been increased to 20 acres. However, procedures exist whereby the owners of lots in Ranchos Grande Vista may subdivide their properties into 5 acre parcels without the approval of the Planning Board. The Great Falls City-County Planning Board has voiced concern over this type of development. Portions of the land south and east of Ranchos Grande Vista is variously platted in plots ranging from 1/4-acre to 20 acres.

Historical/Cultural Sites

Inventory Methodology. Historical and archeological resource inventories were conducted covering the corridor encompassing the reasonable alternate route alignments and also the general route of a southerly alignment which crosses the Missouri River near Sand Coulee Creek. The inventory consisted of two phases. Phase I was a 100 percent pedestrian investigation of the reasonable alternative alignments and the southerly additional alignment. The pedestrian search was conducted by two investigators using a zig-zag pattern, covering an area approximately 500 feet in width. Potential sites were mapped and photographed and field notes taken. Interviews were also conducted with local informants with knowledge of the area's land use and history.

Phase II was a comprehensive survey of the literature associated with or with reference to the general project area. The Historic Preservation Office, Montana Historical Society, was contacted for a record of cultural sites listed for the area. The University of Montana Library and Archives, the Montana Historical Society at Helena, the Great Falls library, and the Cascade County Historical Society of Great Falls were examined for documents, archival materials, histories, biographies, photos and maps. Tract books and cadastral survey maps of the Government Land Office were also examined.

Potential borrow areas and/or gravel pits outside the immediate alternative corridor have not been included in the detailed historical or archaeological assessments to date. When the locations of potential sites are determined, historical and archaeological assessments will be conducted prior to final selection.

Historical and Archeological Sites. From these inventories six potentially significant historical sites were identified. Four of the sites consisted of remnant structures and sites of earlier habitation and/or activity and they were specifically: the charred remains of an old building, a group of old log constructed storage sheds, a non-descript depression evidencing the existence of an old structure, and the remaining roadbed of the old government railroad spur line which ran up Gore Hill to the airport. None were felt to be of sufficient historical significance to warrant inclusion on the National Register of Historic Places. The State Historic Preservation Office was consulted for determinations of eligibility for these sites. They concurred that these four sites are not eligible for listing on the National Register of Historic Places. The fifth site, which was later determined to actually exist outside the boundaries of the project corridor and the surveyed area, was the "Schilling site", a registered archeological site. The Schilling site is located in the NW 1/4 of Section 36-T20N-R2E, approximately four miles west of the nearest south arterial alternative alignment. The sixth site was the Lewis and Clark Portage at Great Falls, a National Historic Landmark.

The Lewis and Clark Trail is part of the National Trails System (Public Law 95-625; 92 Stat. 3511) and the Great Falls Portage has been on the National Register of Historic Places as a National Historic Landmark since May of 1966. The Inventory-Nomination Form for this Landmark states that "Since no permanent man-made evidence remains of the Lewis and Clark expedition's campsites and exploration of the Great Falls area, the integrity of the historic sites is dependent on the preservation of the natural scene as it was when the explorers camped there and described it." The Great Falls Portage was significant to the Lewis and Clark Expedition. Encountering the Great Falls of the Missouri affirmed that the party had selected the correct route to the Pacific. Furthermore, the time necessary to make the portage jeopardized the expedition's chances of crossing the Rocky Mountains before winter.

The locations of the portage and the upper portage (White Bear Island) campsite are not exact since there is no visible evidence of the existence of either. The upper or southwest end of the portage, which traverses the south arterial corridor, runs largely through open farmland and can only be estimated since there are two or more coulees in the area that represent possible routes of descent to the Missouri River near the White Bear camp. Also, the area has been disturbed by cultural developments. The approximate portage route and the probable White Bear Island campsite location are shown on Figure 3-19 in the next section titled "Impacts on Section 4(f) Properties".

Impacts. All of the six south arterial alternatives cross the Lewis and Clark Portage Route. Since construction of the south arterial across the Landmark will affect the natural setting of the portage route and, in turn, the integrity of the Landmark, the impact will be significant.

Impact to a National Landmark subjects the project to the provisions of Title 36 CFR 800 and section 4(f) of the Department of Transportation Act (Public Law 89-670). Title 36 CFR 800 states that a Federal undertaking has an effect on a National Register property when it causes any change in quality of the property or setting that qualified the property for the Register. An undertaking is judged to have an adverse effect if 1) it destroys or alters property; 2) isolates it from or alters its surrounding environment; 3) introduces elements out of character with the property or alters its setting; 4) transfers or sells federally owned property without adequate provisions for preservation, maintenance, or use; and 5) neglects a property, resulting in its deterioration or destruction. Section 4(f) of the Department of Transportation Act (Public Law 89-670) states that the Secretary of Transportation shall not approve any program or project which requires the use of land from a historic site unless 1) there is "no feasible and prudent alternative to the use of such land" and 2) the program includes "all possible planning" to minimize harm to the historic site.

The proposed south arterial alignments cross the portage at two points: the SW 1/4 of Section 10 and the NW 1/4 of Section 15-T20N-R4E, and Section 19-T20N-R4E. The quarter sections in Sections 10 and 15 already had been impacted by commercial development when the portage was made a landmark in 1966 and development has increased since then. The portage route through

Section 19 is less affected by development, although there are residences just north of the point where the project crosses the portage, which have been there at least since 1964.

The avoidance of the Portage Route by implementation of the no-action alternative could still result in impact to the landmark; for unless a concerted effort is made to acquire a corridor encompassing the probable portage route alignment or parts thereof, the area may soon be lost to local development which would not be subject to National Historic Preservation regulations.

Mitigation of Impacts. Both 36 CFR 800 and Section 4(f) of the Department of Transportation Act provide for mitigating measures if there are no feasible and prudent alternatives to the proposed undertaking. Title 36 CFR 800 states that if there are no feasible and prudent alternatives to avoid or satisfactorily mitigate the adverse effects of the undertaking on National Register property, and it is in the public interest to proceed with the undertaking, a Memorandum of Agreement should be drawn up among the consulting parties specifying measures to minimize the adverse effects that shall be taken before the undertaking proceeds.

In order to avoid the portage route, a south arterial alignment south of the White Bear Islands Camp would have to be implemented. As discussed in the "Alternatives" chapter, an alignment which crosses the Missouri River in this vicinity was considered but downgraded as a reasonable alternative due to poor traffic loading projections. Additionally this southerly alignment would impact the Lewis and Clark Portage more than the reasonable alternatives as it would impact the White Bear Islands Camp and would roughly parallel the Portage Route, further impacting its natural setting.

Since all of the reasonable south arterial alignments, including the preferred alternative, will result in identical impacts to the Portage Route, it is concluded that there are no feasible and prudent alternatives to avoid these adverse impacts. The State Historic Preservation Officer, the U.S. Department of the Interior, and the Advisory Council on Historic Preservation concur with this finding and a Memorandum of Agreement has been executed in compliance with Section 106 of the National Historic Preservation Act. A copy of this Agreement is included in Chapter 5.

To minimize the adverse effects on the Lewis and Clark Portage Route, a vehicular turnout and interpretive display will be constructed in accordance with the Memorandum of Agreement near the location where the south arterial crosses the Portage Route in Section 19-T20N-R4E. This mitigative action is seen to have lasting beneficial effect as it will increase the awareness of the traveling public concerning the historical significance of the portage trail and of the role of the Lewis and Clark expedition in the country's settlement. The State Historic Preservation Officer will be consulted on the design and placement of the interpretive display.

Should other historical or cultural resources be discovered during any stage of project planning or actual construction, compliance with the process established by 36 CFR Part 800 will be carried out.

Impacts on Section 4(f) Properties

All of the south arterial alternatives will cross recreational and/or historical lands. Routes which cross such lands are subject to the provisions of section 4(f) of the Department of Transportation Act (Public Law 89-670). If there are no feasible and prudent alternatives which avoid these properties, the proposed action must include all possible planning to minimize harm.

The following agencies have been consulted regarding the location of Section 4(f) lands and potential impacts of the various alternatives:

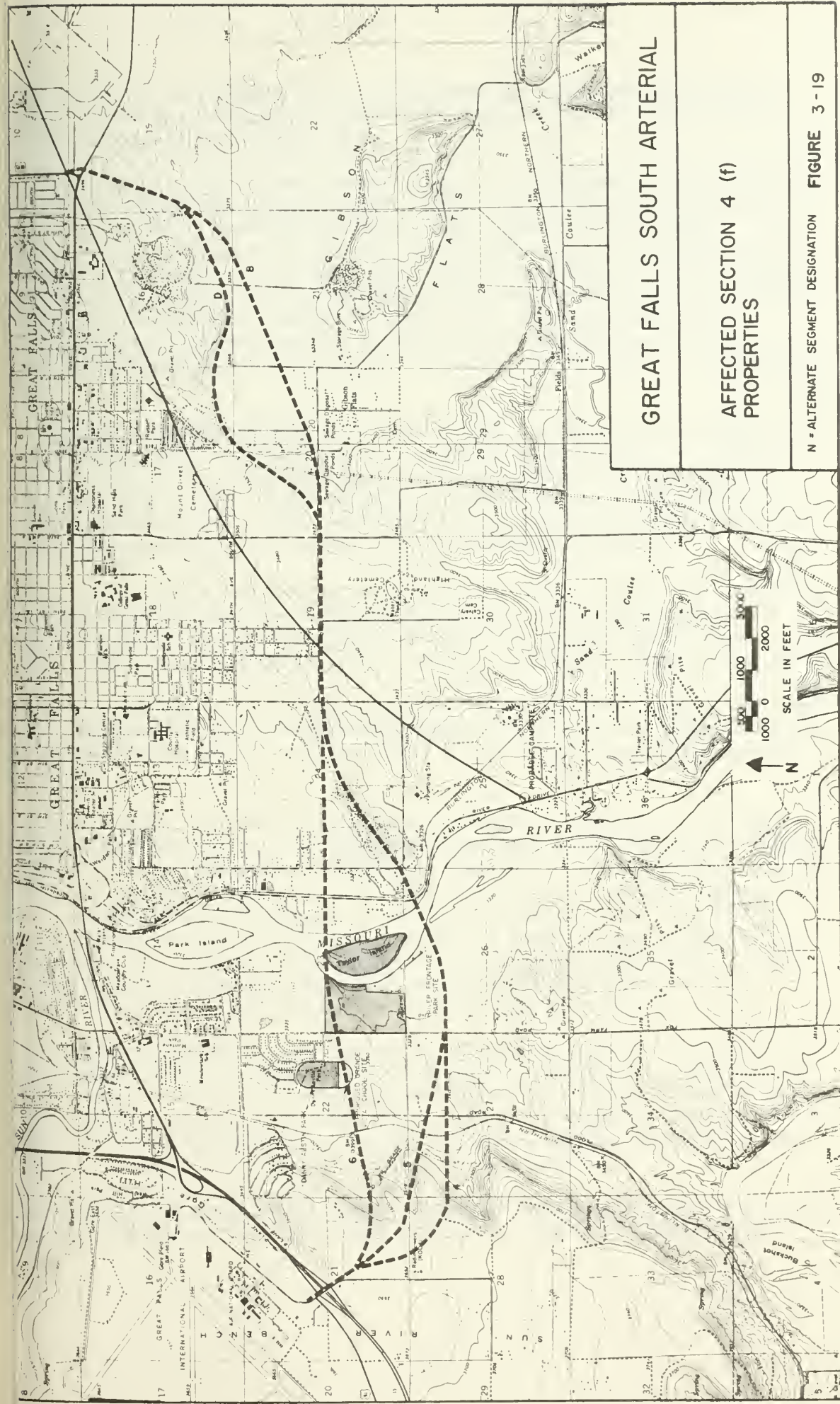
- U.S. Department of the Interior, National Park Service;
- Office of Archeology and Historic Preservation;
- Montana State Historic Preservation Office;
- Montana Department of State Lands;
- Great Falls Park and Recreation Department; and
- Great Falls Public Schools.

Based on these coordination efforts, alternatives were studied which would avoid the historical and/or recreational sites. These are discussed in the Chapter on Alternatives, in the section titled "Historical/Cultural Sites", and in this section.

Sites of Concern. Recreational and historical sites which will be impacted by one or more of the alternatives are shown on Figure 3-19. The Lewis and Clark Portage is discussed in detail in the section titled "Historical/Cultural Sites" and will not be discussed in depth in this section. The affected recreational sites are discussed below.

Taylor Island. Taylor Island is an undeveloped 49 acre island in the Missouri River owned by the City of Great Falls and designated as official parkland. No one lives on the island, and the only access to it is by boat. Many local residents have expressed, by letter or during preliminary public meetings, desires that Taylor Island remain a natural area and sanctuary for wildlife. The City of Great Falls Park and Recreation Department expects that Taylor Island will either be maintained for passive recreational activities or be developed into a park. The island has been identified as a wetland area and is subject to flooding.

River Frontage Site. The State of Montana owns an 80 acre site on the west bank of the Missouri River legally described as Lot 6, Section 23, Township 20 North, Range 3 East. The site is south of and adjacent to residential development in the Fox Farm Addition and abutts on Fox Farm Road on the west. The property includes approximately 1/4 mile of river frontage and is directly across the River from Taylor Island. It is presently leased to the City of Great Falls. The City's lease expires February 28, 1982. The Director of the Great Falls Park and Recreation Department advises that the City intends to extend the lease with the state and plans to develop the acreage for river front park land. Its proximity



GREAT FALLS SOUTH ARTERIAL

AFFECTED SECTION 4 (f)
PROPERTIES

Taylor Island would lend it to development in conjunction with the island. There are presently no homes, recreational facilities, or other substantial structures on the land.

Danny Austin Park. Danny Austin Park is a dedicated 16.5 acre park site in the Grande Vista Subdivision. This site has been developed by the City of Great Falls with ball diamonds and recreational equipment. An additional 12 acre parcel of private land adjacent to the present park is expected to be deeded to the City when land to the south of the existing subdivision is developed. The park will then be adjacent to the proposed Grande Vista School Site and would function as an extension of the recreational facilities provided by the School. Vehicle and pedestrian access to Danny Austin Park is good as the park is adjacent to a developed area.

Grande Vista School Site. An undeveloped ten-acre tract, immediately south of Danny Austin Park, is owned by School District No. 1. The District anticipates eventual construction of either an elementary or a junior high school here. Not formally a 4(f) property, this site is discussed here because of its proximity to the park and the fact that the two facilities could act as a unit for recreational purposes.

Impacts. All of the reasonable south arterial alternatives will impact the Lewis and Clark Portage as discussed previously. The impact will be significant where the south arterial crosses the Portage in Section 19, 20N., R.4E., as the arterial will alter the natural setting of the area.

Alternate segments 4, 5, B, and D will not directly impact any designated park or recreation land. Alternate segments 4 and 5 will, however, affect part of Taylor Island and the south end of the future River frontage Park usually.

Alternate segment 6 will directly impact parkland, crossing the proposed Grande Vista School site, the River frontage park site, and Taylor Island. Nearly all of the school site would be required for right-of-way. This would also result in secondary noise and visual impacts to the Danny Austin Park. Approximately 20 percent of the River frontage park site and 4 percent of Taylor Island would be lost due to construction of the south arterial and the future interchange facilities at Fox Farm Road. Noise and visual impacts would affect both nearby residents and sensitive wildlife using these undeveloped park sites as a sanctuary.

With alternate segment 6, the potential for providing vehicle access to Taylor Island for park development is greatest. However, a structure to provide vehicle access to Taylor Island would take approximately 50 percent of the island. The City of Great Falls Park and Recreation Department expressed strong opposition to any disruption of future parkland for the purpose of constructing highways, bridges, and the like.

Several design options for alternate segment 6 were considered to avoid the impacts to parkland. The alignment passes just south of the heavily

developed areas of the Grande Vista Addition and Fox Farm Addition. Moving the alignment north would involve crossing Danny Austin Park and the taking of numerous residences and is not considered a reasonable approach. Moving the alignment south could avoid the Grande Vista school site but would cross through the center of the future River frontage park site and Taylor Island, resulting in greater impacts to these recreational lands. This is also not considered a reasonable approach.

Since alternate segments 4 and 5 will avoid parks and recreational lands, they are feasible and prudent alternatives to alternate segment 6. The "no action" alternative would not impact any recreation or historic sites.

Mitigation of Impacts. As discussed previously, there are no feasible and prudent alternatives to avoid the Lewis and Clark Portage. A Memorandum of Agreement has been executed whereby the impacts from the crossing would be mitigated by construction of a turnout and interpretive display near the location where the south arterial crosses the Portage route in Section 9-T20N-R4E. The preferred alternative (Alternative 5-D) avoids the use of any other Section 4(f) lands and, therefore, no other mitigation measures are required.

THE NATURAL ENVIRONMENT AND RELATED IMPACTS

Natural Resources

Discussion. Impacts to natural resources are considered to be those project related consequences which inhibit or eliminate the beneficial utilization and appreciation of the physical and biological wealth of the land. Impacts to soil resources, mineral resources, groundwater, vegetation, wildlife and energy resources are projected.

Existing Environment. The project corridor encompasses a varied landscape including agricultural land, residential and commercial developments, riverine environments and wetland areas. The various resources areas will be discussed individually as they occur in the project area and as they would be influenced by the project.

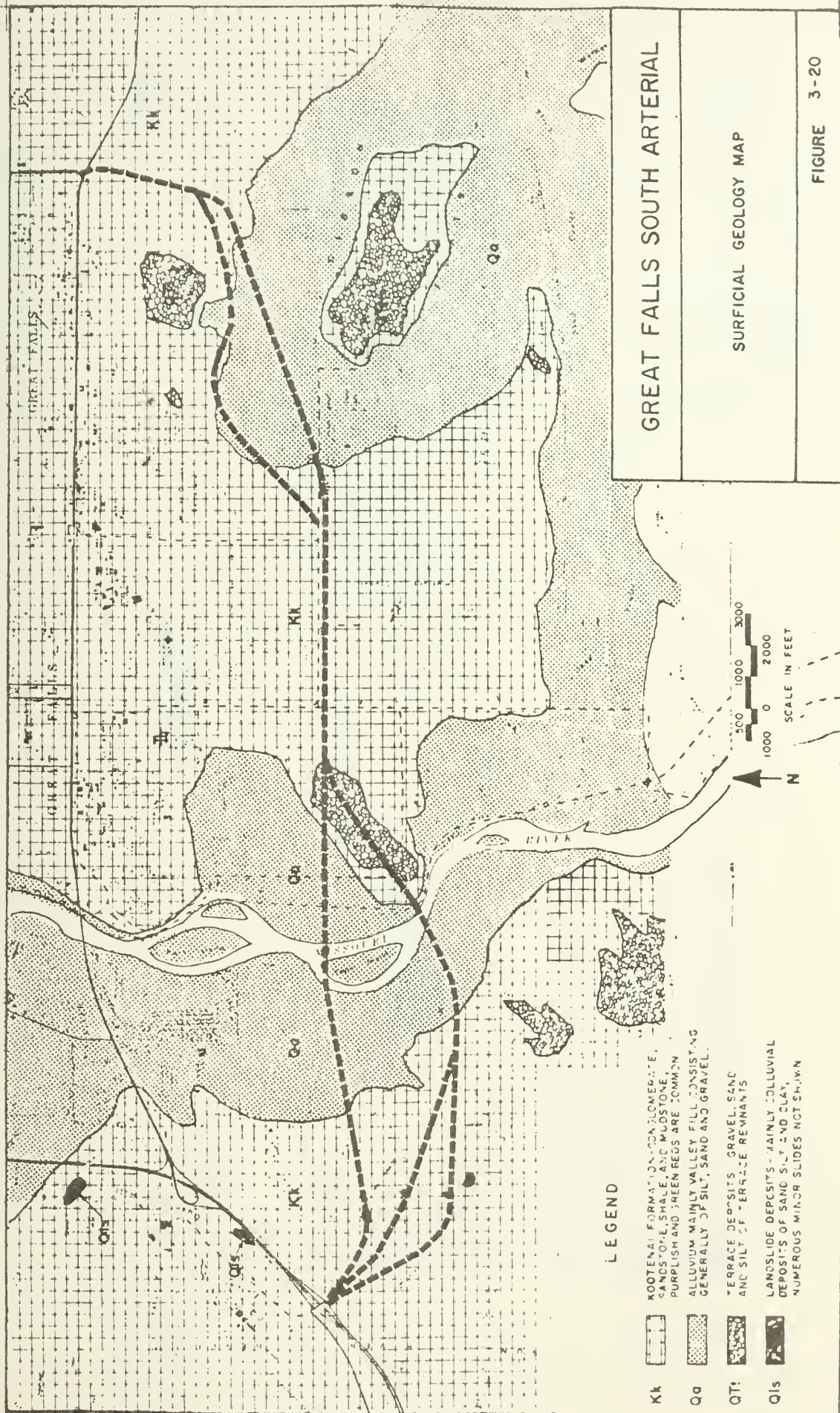
Soils. Much of the soil in the project area to the east is of the Azaar-Gollaher-Tally association. It is usually found in areas used as range land or non-irrigated forage land. This association is on gently undulating to rolling bedrock uplands south and west of Great Falls. The soils in this association are mainly dark-colored, well-drained, sandy soils 30 to 60 inches deep over shale or sandstone.

Another prominent soil subgroup is the Yetull-Gollaher-Korchea association. This soil association is on nearly level to undulating terraces and flood plains along the Missouri river between Great Falls and Ulm. The soils are dominantly deep, well-drained loamy sands; however, loam and clay loam soils occur on some nearly-level terraces. This soil association is used for nonirrigated and irrigated small grain, hay, and grazing.

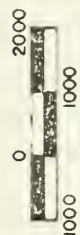
The Fergus-Twin Creek association is on nearly-level flood plains in Gibson Flats. These are deep, well-drained, reddish-colored, loam and silty clay loam soils.

The eastern area of the proposed south arterial is found in soils of the Landusky-Gerber-Belt association. This soil association is used mainly for nonirrigated small grain crops. It is on gently undulating to rolling glaciated plains east and southeast of Great Falls. The soils are mainly deep, well-drained, clayey soils formed in glacial till and glacial lake sediments.

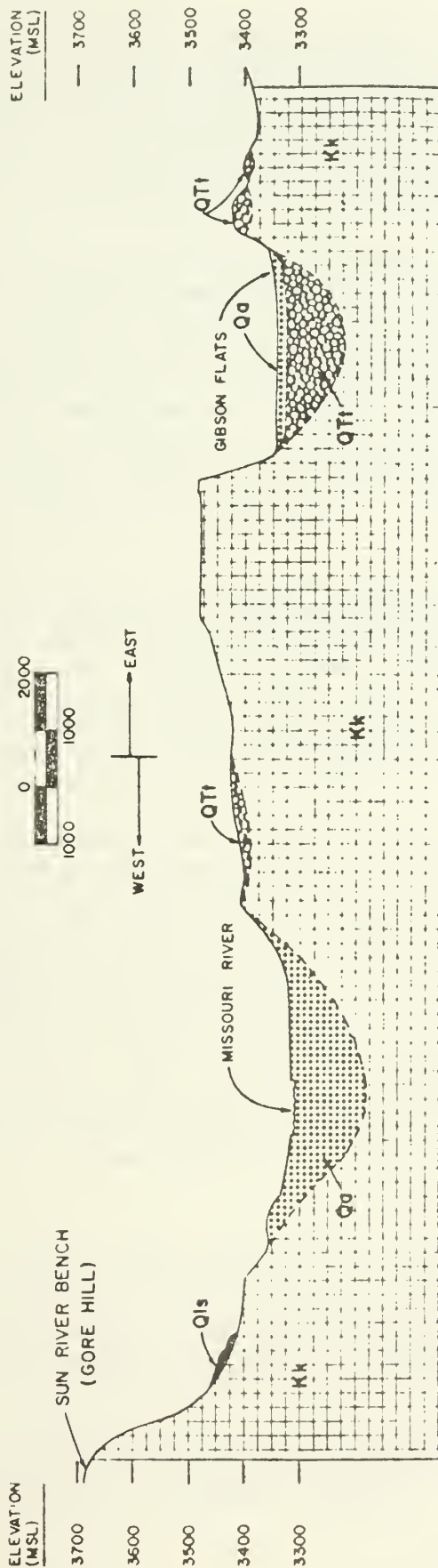
Mineral Resources. The principal mineral resources in the Great Falls area include coal, clays, building materials, and groundwater. Figure 3-20 presents a surficial geology map of the south Great Falls area. A geologic cross section of the South Arterial corridor is shown on Figure 3-21.



HORIZONTAL SCALE IN FEET



WEST ————— EAST



LEGEND

- Kk** KOOTENAI FORMATION - CONGLOMERATE, SANDSTONE SHALE AND MUDSTONE. PURPLISH AND GREEN BEDS ARE COMMON.
- Qa** ALLUVIUM MAINLY VALLEY FILL CONSISTING GENERALLY OF SILT, SAND AND GRAVEL.
- QTt** TERRACE DEPOSITS - GRAVEL, SAND AND SILT OF TERRACE REMNANTS.
- Qls** LANDSLIDE DEPOSITS - MAINLY COLLUVIAL DEPOSITS OF SAND SILT AND CLAY, NUMEROUS SLIDES NOT SHOWN.

GREAT FALLS SOUTH ARTERIAL

TYPICAL TOPOGRAPHIC AND
GEOLOGIC CROSS SECTION

FIGURE 3-21

The main economic coal unit in the area consists of from 5-10 feet of coal bearing strata within the Morrison formation which were originally assigned to the base of the Kootenai formation. Development of this resource has occurred south and east of the project area. The nearest workings are located in Sand Coulee, approximately five miles south of the proposed highway alignment. The coal as it occurs within the project area is quite deep and not economically significant at the present.

The soil mantles of both the alluvium and bedrock contain clays suitable for building purposes (bricks, masonry, etc.). In addition, several of the underlying bedrock formations contain shales which are rich in fire clays. One of the more valuable clay deposits is the volcanic ash (bentonite clay) deposit of the Mowsy Formation in the Colorado shale group. The Mowsy is a silicified shale which may or may not underlie the project area west of the Missouri River on the Sun River bench. Some drillers' logs in the area refer to a bentonite shale approximately 150-200 feet deep. This highly silicified clay would not be considered a very high grade resource and development in the study area is unlikely.

Most of the area traversed by the proposed highway alignment is dependent on groundwater for both domestic supply and irrigation. The single most important aquifer (water-producing formation) consists of the thick (200'+) alluvial sands and gravels along the Missouri River valley, Sand Coulee Creek, and in the vicinity of Gibson Flats. Most of the wells producing from this unit are of small diameter (approximately six inches for domestic purposes) and generally yield 10-30 gpm (gallons per minute). Similar wells producing up to 100 gpm are not uncommon.

Developed water-bearing units also include various sandstone and limestone strata associated with the Kootenai and other bedrock formations. Although numerous, such strata occur throughout the study area at various depths. Some of the more notable bedrock units include the "Third Cat Sand" which is a hard, well-cemented, basal sandstone member of the Kootenai formation and a shallower light brown limestone unit. The basal sandstone of the Colorado Group (the Flood Sandstone) is also an important aquifer for domestic water supplies particularly beneath the Sun River Bench in the western part of the study area. The Flood Sandstone lies on top of the Kootenai shales resulting in perched and semi-perched water table conditions. Numerous seeps and springs along the edge of the Sun River Bench result where the contact between the Flood Sandstone and the Kootenai shales outcrop.

Production in the bedrock units is generally derived from fractured zones where water is transmitted and stored in joints and cracks within the rock. The water-bearing units of the Madison Limestone are tapped by wells generally 300-500 feet deep. Deeper water-bearing rocks exist; however, these deeper bedrock production zones are generally in excess of 700 feet deep and have not been developed to any great degree.

Although the near surface alluvial deposits present a high potential for groundwater development, well log data indicate that bedrock aquifers are tapped more commonly than the alluvial aquifers.

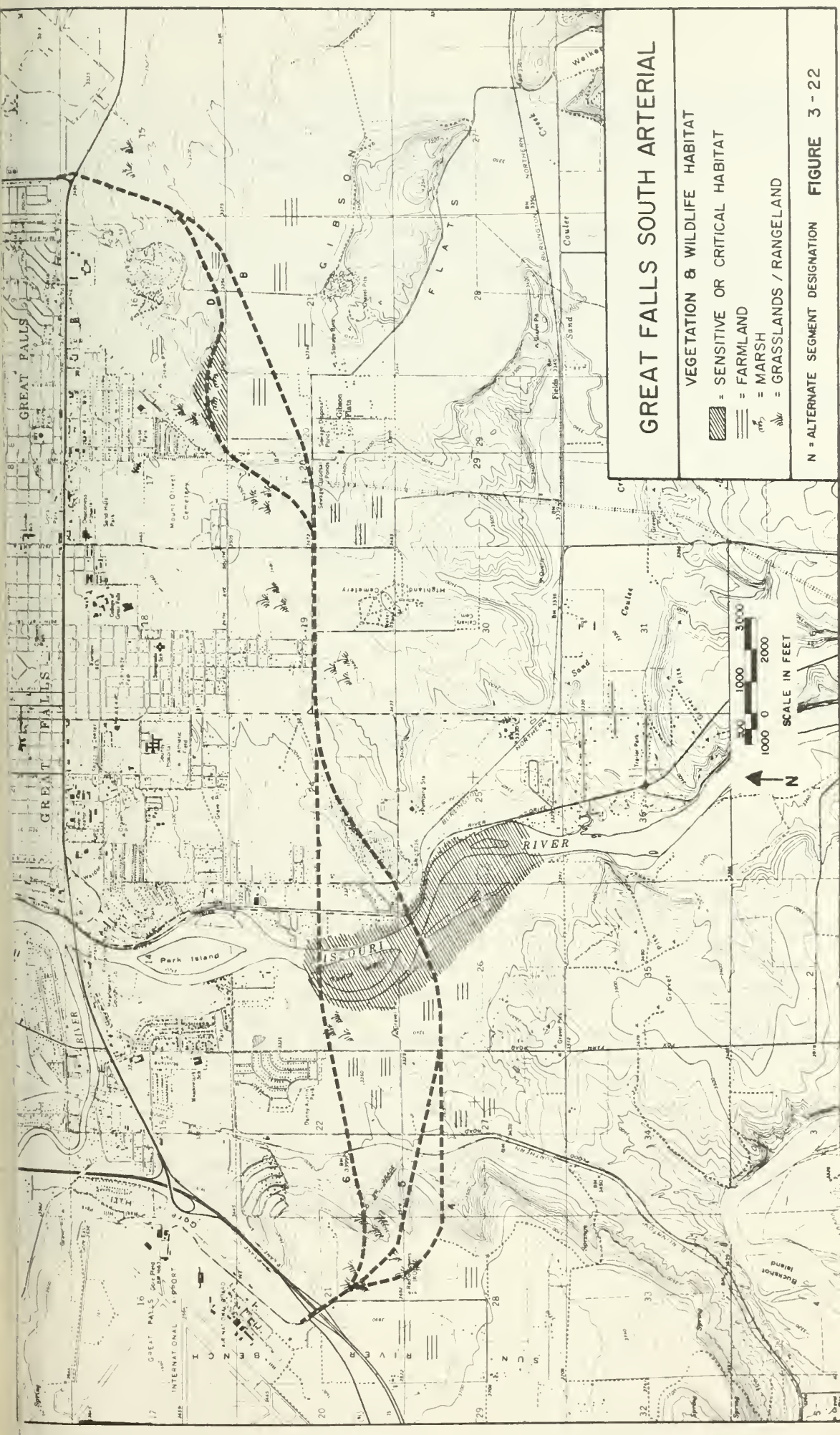
Static water levels in the vicinity of the proposed highway range from about 5 to 60 feet deep for the alluvial sands and gravels. Aquifers within the bedrock are often confined resulting in artesian pressures with static levels ranging from about 40 to 300 feet, depending on the particular strata penetrated.

Vegetation and Wildlife Habitat. The dominant native biome in the Great Falls vicinity is mixed-grass and shortgrass prairie. Grasses, forbs, and yucca dominate in the uplands unmodified by cultivation. Crested wheatgrass, tall and intermediate wheatgrass, smooth broom grass, and reed grass are the common species mixed with various native legumes. The terrain is essentially open with rolling hills and plateaus interspersed with deciduous trees and shrubs along the low-lying water courses and springs. Box elder is the dominant tree species. Eastern cottonwood, green ash, Russian olive, chokecherry, peach-leaved willow, and sand bar willow are also found in the area. Wild rose is the principal understory species in and near wooded areas. Figure 3-22 identifies vegetation and wildlife habitats in the south arterial corridor.

The best terrestrial wildlife habitat in the immediate project area exists adjacent to the banks of the Missouri River and on Taylor Island situated in the river. These areas exemplify interfaces of habitat types, for example, prairie brush, woods, and riparian habitats. Interfaces provide a diverse physical environment which can support an abundance of wildlife.

Taylor Island is approximately 49 acres of open woods with relatively dense underbrush, primarily wild rose, and a few scattered open areas. In conjunction with the 56-acre Park Island directly to the north, Taylor Island provides a unique natural area near urbanized Great Falls. Islands have many valuable qualities for inhabiting wildlife; one of the major variables is the buffer of surrounding water, which can allow species generally intolerant of human proximity to live closer to urban areas than they would on a land-bordered sanctuary. The undisturbed nature of the site can also attract migrating waterfowl, bald eagles, and other birds that require a nearby body of water. The woods provide possible perches for winter hunting bald eagles, which are an endangered species.

The slough just south of Taylor Island, once the old river channel, probably represents one of the most sensitive and productive regions of the Missouri River within the project area. The shallow waters and dense vegetation provide nursery habitat for fingerling trout and other young fishes, and protective cover for other aquatic creatures. The Missouri River between Sand Coulee Creek and Black Eagle Dam is designated as "Class 3" under the State Stream Evaluation System. There are no "species of special concern" in the area; the classification of 3 is based on a substantial fishery resource (Rainbow trout, Brown trout, whitefish and burbot especially), high aesthetic appeal and a high species diversity index. The sport fishery resource is estimated at 40 kg/300 m surface of water. The somewhat stagnant waters are optimal for emerging insect larvae, which serve as a food source for many fishes and birds.

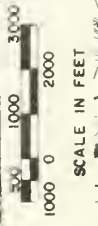


GREAT FALLS SOUTH ARTERIAL

VEGETATION & WILDLIFE HABITAT

- [Hatched Box] = SENSITIVE OR CRITICAL HABITAT
- [Horizontal Lines] = FARMLAND
- [Wavy Lines] = MARSH
- [Dotted Lines] = GRASSLANDS / RANGELAND

N = ALTERNATE SEGMENT DESIGNATION **FIGURE 3 - 22**



Of secondary importance is a seasonally wet marsh proximate to the base of the bluff at the north end of Gibson Flats. The temporal nature of this habitat decreases its productivity and hence reduces its value to wildlife although it does support nesting and foraging birds in addition to supplying cover for small mammals and rodents.

The short grass prairie biome, transected also by meandering waterways, of the region south of Great Falls provides good habitat for a variety of wildlife species. Lists of species occurring in the vicinity of Great Falls are of little value unless their functional importance relative to the community and the strength of the interactions or interconnections between them is understood. In a practical sense, it is impossible to define all of the ecological relationships for all species at a given site. Long term experimental studies in the project area would be necessary for a site-specific analysis. Barring the existence of such long term baseline data, two approaches to wildlife impact assessment can provide indexes on the most significant probable impacts. The first is habitat evaluation and impact assessment, with extrapolation to the effects generated to the organisms themselves. The second is an emphasis on species of special concern, which are generally designated as such due to economic value or rare or endangered status.

On-site investigations of the project area indicated the most abundant wildlife habitats exist on the islands and rivershore areas of the Missouri River. Taylor Island has a known population of whitetail deer. Beaver were seen on the riverbank west of Taylor Island and fox sightings are frequently reported in the area. Most recently, southwest Great Falls was used as a winter browse area by antelope and elk. Encroachment into these areas by housing development is already reducing the valuable wildlife habitat that still exists.

Endangered species known to occur in Montana and which may inhabit or migrate through Cascade County include the whooping crane, Rocky Mountain (gray) wolf, black-footed ferret, Peregrine falcon, and bald eagle. Only the bald eagle and Peregrine falcon have been sighted in the Great Falls vicinity in recent years. According to an agent for the U.S. Fish and Wildlife Service, the major concern is with respect to bald eagles, which are known to winter from Holter Lake (south of Great Falls) along the Missouri River as far north as Benton Lake. A 1978-79 mid-winter count sighted 12 bald eagles in the area between Holter Lake and Great Falls. They are frequently seen upstream from Warden Bridge. This indicates a significant but low-density population in the area. Since the eagles primarily hunt fish for food, they are most commonly seen perched in high trees adjacent to the river. Concern has been expressed over the potential loss of prairie dog towns because of their association as prey for the black-footed ferret, mountain plover, and burrowing owl. An agent with the Montana Department of Fish, Wildlife and Parks in Great Falls stated that there used to be a few prairie dogs southwest of Great Falls, but development in the area has eliminated them or at least reduced their habitats.

Mergrine falcons are believed to migrate through the area, although sightings are very infrequent and are not generally verified by an expert (they are difficult to distinguish at a distance from the more common prairie falcon). These birds feed mostly in open spaces on mice and small upland game birds. Agents of the Department of Fish, Wildlife and Parks do not feel the proposed arterial would significantly impact this species.

Endangered fish species or state-listed fish species of special concern inhabit the portion of the Missouri River within the project study area.

Energy Resources. Energy resources include all basic fuel supplies that are utilized for heating, electrical production, transportation, and other forms of energy requirements. These resources may take the form of fossil fuels (oil, coal, gas, etc.), or miscellaneous fuels, such as wood, solid waste, or other combustible materials.

Non-Fuel Resources. Non-fuel resources are used in either a natural or a transformed state for products and materials in the development of the human environment. Few activities are independent of natural resource usage. Activity that consumes materials and supplies, requires equipment and machinery, uses land, or produces waste products may have an effect on the natural resources. Various materials--aggregates, cement, steel, asphalt, etc.--are used in construction and eventually in the operation and maintenance of highways.

Natural Resources Impacts.

Soils Impacts. Soils resource impacts include the appropriation of physical land areas for facility installation and right-of-way. These areas will be basically lost as a soil resource for agriculture and development in future years. Physical impacts to the soil resource include excavation as necessary for the project construction.

Deep cuts of 60 feet or more on the east side of the Sun River bench are required for alternate segments 4, 5 or 6 and all have moderate sized embankments planned for the Missouri river east approach. Any alternative will encounter similar problems. In the Gibson Flats area, alternate segment D has numerous cuts and fills on the north and west slopes rising off of Gibson Flats. The fills will be founded on either side slopes or the clayey soils of the flats area. Alternate segment B has two moderate size cuts, which should not experience seepage problems, and one long fill across Gibson Flats. Alternate segment D would appear to be more favorable than alternate segment B from a geotechnical viewpoint. Special care is needed to establish positive drainage away from foundation soils in the Gibson Flats area.

On the Sun River Bench one of the major soil complexes, Ticell-Castner, is less than two feet to sandstone. Increased excavation costs will be associated with these soils. In the Missouri River bottom lands as well as some benches, major soils are subject to severe shrink-swell and frost

have problems. These low strength soils, such as Marias clay, Gerber silty clay loam, and Kober silty clay loam, are common throughout the study area. Soil erodibility can be a significant consideration in steep topography during construction and until vegetation has been re-established. Approximately 40 percent of the soils of the corridor are susceptible to wind or water erosion. None of these soil conditions result in prohibitive constraints to construction. Generally speaking, soils impacts can be minimized with appropriate engineering design.

Mineral Resource Impacts. The coal resources of the Great Falls area will not be affected by any of the various alternatives for the proposed highway. Although the coal strata underlies the project area (as indicated in well drillers' logs), it is several hundred feet deep. In the event coal at these depths ever become economically important the presence of the highway should not inhibit the development of these resources.

Construction of the project will result in the burying and/or excavation of the clayey soil mantles on both the alluvium and bedrock units. Some of the material may be used during construction.

Long-term impacts on the groundwater regime are anticipated as a result of any of the alternatives. Fairly thick, relatively impermeable soils overlie the bedrock and alluvial deposits and would serve to inhibit the entrance of significantly degraded drainage water which might result from the highway's presence.

Short-term impacts resulting from construction of the proposed highway are possible. Fuel, lubricant, and chemical spills could result in the introduction of contaminants into the groundwater. This situation would apply primarily to those locations where road alignment excavations result in the stripping away of the protective soil mantle, exposing permeable alluvial sands and gravels. In the bedrock areas this would not be a problem since numerous impermeable shale strata separate water-bearing units from the surface.

Numerous water wells located along the route of the various proposed alternatives present direct access to the various groundwater formations they penetrate. Care must be taken to insure that any wells adjacent to or on the highway alignment are properly abandoned according to accepted standards prior to construction.

Vegetation and Wildlife Impacts. Agents of the U.S. Fish and Wildlife Service and the Montana Department of Fish, Wildlife and Parks have been consulted regarding vegetation and wildlife impacts. All of the alternatives would permanently remove native vegetation and disrupt a certain amount of wildlife habitat. The most critical impacts would occur at the river crossing sites--these adverse effects cannot be totally avoided because every combination of alternatives requires the spanning of the Missouri River.

Alternative segment 6 impacts the north end of Taylor Island and would, under no-vehicle access conditions, remove about 2 acres of trees and other vegetation. It would also remove trees and shrubs on the east bank of the Missouri River. Another long-term impact would be the creation of a noise and activity barrier between Park and Taylor Islands, which for some sensitive species could reduce the amount of available undisturbed habitat by more than the actual acreage removed by the bridge. Many wild birds have limits for the amount of undisturbed space they require before they will land at a given site. There are some short term impacts that will occur. Construction impacts will degrade the water quality, and hence aquatic habitats of the Missouri River by increasing sediment loading. This may be most critical in the spring and early summer due to fish spawning.

Alternate segments 4 and 5 will directly impact shoreline vegetation, especially on the west bank of the Missouri River, and will indirectly impact Taylor Island by increasing noise and human activity levels. As mentioned above, many of the more sensitive species of wild birds have limits for the amount of undisturbed space they require before landing at a given site. During construction, the increased sediment loads might impact the area shorelines, particularly the west side, where some stands of cattails and bulrushes provide protective cover.

The bridge alignments for both alternate segments 4 and 5 would cross the north end of the old river channel slough. The bridge structure would be a long-term adverse impact to the terrestrial components of the environment but should not significantly impact the aquatic domain in a long-term manner. The short-term siltation impacts associated with erosion and pier placement are somewhat reduced because the arterial alignment is north, and hence downstream from the slough area.

The eastern continuation of alternate segments B and D for the proposed arterial would remove a certain amount of native vegetation. Both impact the Sand Coulee Creek flood plain and drainage area, indicating that increased erosion potential generated during construction activities could impact Sand Coulee Creek and, ultimately, the Missouri River. Alternative segment D will adversely impact the swampy marshlands at Gibson Flats. The highway embankment would cover some of the areas, eliminating them as usable wetlands.

The loss of native vegetation and wildlife habitat is unavoidable. Timing of construction and utilization of siltation traps could reduce the negative impacts on aquatic communities, particularly fish eggs and fry, associated with river crossing construction. Accepted techniques such as placement of straw bales will be employed to minimize erosion in cut and fill areas. Drainage ditch diversion to lowland regions along the arterial in the Gibson Flats area could maintain and possibly enhance roadside marshes and wetlands.

Construction of the arterial will decrease the number of animals found at the site for the following reasons:

- Deaths and injuries directly caused by clearing and construction;
- Decrease in number of food organisms;
- Decrease in the area of habitat available, as well as removal of home territories of both the aquatic and the territorial birds and mammals living on the proposed route;
- Increases in noise, air and water pollution will reduce the numbers of individuals in species sensitive to these stimuli; and
- Road kill of mammals and birds attempting to cross the road.

Most of the phases of arterial construction, and its subsequent long term existence, would not directly impact individual animals. Habitat degradation and removal will have significant secondary adverse effects on wildlife. Noise and automobile activity will reduce the quality of surrounding lands for some species. The removal of total acreage of habitat will ultimately reduce the numbers of individual organisms in a much greater area, for there are rarely any unoccupied "niches" for those displaced animals to utilize.

Adverse impacts to overwintering bald eagles in the project area would result from loss of high perch trees and/or disturbance or destruction of their hunting grounds. The only part of the proposed arterial which has the potential to impact these birds are the two proposed river-crossing structures. Suitable perch trees are found along this reach of the river.

Formal consultation has taken place with the U.S. Fish and Wildlife Service in accordance with the Section 7 "Interagency Cooperation" regulations of the Endangered Species Act of 1973, as amended. It is the Service's biological opinion that none of the alternative south arterial alignments are likely to jeopardize the continued existence of the bald eagle.

No bald eagle nests occur in the project area. Thus, reproduction will not be affected. Bald eagle use along the river during the winter is largely a function of "open water" which attracts waterfowl - a major prey of the bald eagle. It appears that the river at the proposed crossing locations of alternate segments 4, 5, and 6 is frozen during most winters, restricting eagle use at these locations. The National Wildlife Federation's mid-winter bald eagle surveys indicate that the eagle use of the area is limited to individuals, and not major populations of eagles. Because alternate segment 6 spans the River and crosses Taylor Island where there are more trees than at the site for alternative segments 4 and 5, alternate segment 6 may have the larger impact on eagles. The differences in impact to the eagle between the alternative segments, however, are minimal. Osprey and geese nesting sites are a potential concern according to the Montana Department of Fish, Wildlife, and Parks.

All three alternate segments would temporarily impact fishes and other aquatic animals in the Missouri River and could, therefore, have a

secondary impact on the bald eagles by disrupting their food supply. This adverse effect would only be temporary. Long-term impacts would be the increase in noise and human activity levels adjacent to possible feeding areas. With available undisturbed woods and an adequate food supply, however, the eagles might adjust to the nearness of vehicular traffic since they are located in relatively urbanized areas. Care would be taken to disturb the least number of trees possible and to minimize any construction-related impacts on the aquatic community.

Energy Resources Impacts. When a project consumes energy, this consumption should be considered as a primary or direct impact on energy resources. Transportation facilities result in the direct consumption of energy by vehicle use and in indirect consumption of energy by construction and maintenance activities. The most important variables to be considered in determining impacts on fuel resources are the rate of fuel consumption for the particular activity being considered, and the useful energy output derived from the fuel being consumed.

A common unit of heat, the Btu, may be applied to express energy consumption. A Btu is the quantity of heat required to raise the temperature of one pound of water one Fahrenheit degree. In the evaluation of transportation systems, alternatives may be compared on a Btu per vehicle-mile or barrels of oil per day equivalent.

Energy use projections were developed using the methodology outlined in the handbook "Energy Requirements for Transportation Systems," prepared by J. Shirley and J. Apostolos for a Federal Highway Administration workshop in Denver in 1979. The direct consumption of energy by vehicles was calculated for the twenty-year period 1981-2000 using a Wang computer. The computer program used a loop which provided annual corrections for changes in traffic volumes and for per-vehicle fuel use rates. The traffic volumes used for the calculations were based on the year 2000 projections provided by the Montana Department of Highways. These projections for the year 2000 were brought back to 1981 using other data provided by the Department and incremented year-by-year by applying an annual growth factor.

The indirect energy consumption due to construction of the south arterial was calculated by reducing the construction cost estimate for four categories--landscaping, miscellany, roadway, and structural constructions-- to 1973-74 equivalent cost, then applying factors from "Energy Requirements for Transportation Systems" which convert construction dollars for each category to Btus. When averaged over an estimated useful life span, an average annual cost is determined. This method is reasonably accurate for the data obtained from preliminary cost estimates to be used in a comparison of the different alternatives. Indirect energy consumption due to maintenance is calculated from total lane-miles times a factor relating Btus per lane-mile per year.

Energy use projections were developed for four alternatives; the "no action" alternative, the "Upgrade 10th Avenue South" alternative, and two south arterial facility alternatives. South arterial alternatives 4-D and 6-B were selected for the calculations as these are the longest and shortest route alternatives respectively. While the "Upgrade 10th Avenue South" alternative is not considered to be a "reasonable" alternative as discussed in Chapter 2, it was included in these calculations for comparison purposes. The projected energy consumption for these alternatives by source is presented in Table 3-10.

Table 3-10

ENERGY CONSUMPTION BY SOURCE

Description	No Action Alternative	Equivalent annual consumption, BTU/yr ^a		
		Upgrade 10th Ave. South	Alternative 4-D	Alternative 6-B
Direct vehicle fuels	4.745×10^{11}	4.495×10^{11}	4.855×10^{11}	4.665×10^{11}
Direct construction	0	0 ^b	1.759×10^{10}	1.761×10^{10}
Direct maintenance	2.415×10^9	1.66×10^9	4.35×10^9	4.02×10^9
Indirect, annual average	4.7692×10^{11}	4.5116×10^{11}	5.0744×10^{11}	4.8813×10^{11}
Indirect, barrels of oil				
Direct, ^c	225 bbl.	213 bbl.	240 bbl.	231 bbl.
Indirect, BTUs per				
mile	6,815	6,447	6,350	6,265

^aEnergy due to the proposed 10th Avenue South reconstruction is not included as it is assumed it will be reconstructed regardless of construction in the South Arterial.

^bEnergy due to the proposed 10th Avenue South reconstruction is not included as it is assumed it will be reconstructed regardless of south arterial construction.

^cBarrels of oil = BTUs/ 5.8×10^6

Sources: HKM Associates
Brown & Caldwell

The "Upgrade Tenth Avenue South" alternative assumes that the recommendations of the Tenth Avenue South Improvement Plan (Robert Peccia and Associates 1979) will be implemented. These recommendations include expansion of Tenth Avenue South from four to six lanes, modification of the driveway cross streets, and improving the traffic signals and lighting.

The south arterial facility alternatives assumed that the full facility with interchanges would be constructed initially. The projected traffic flows on Tenth Avenue South with the construction of the south arterial were also calculated to determine the total energy used by through and local traffic using either the south arterial or Tenth Avenue South between the airport and 57th Street. Tenth Avenue South was assumed to be a four-lane highway for the purposes of these calculations.

It appears from these projections that the "Upgrade Tenth Avenue South" alternative would result in the least total energy consumption. However, at the current state of the art for energy use comparisons, the differences between any of the alternatives cannot be considered significant. The energy consumption calculations only take into consideration the projected traffic flow and energy consumption on the south arterial and on 10th Avenue South and do not consider the effects of different travel patterns

o the rest of the Great Falls street network with any of the alternatives. The energy calculations do indicate, however, that the south arterial alternatives will provide greater energy consumption efficiency on the basis of energy consumption per vehicle mile.

In the development of the year 2000 recommended major street network in the Great Falls Transportation Plan, consideration was given to the effects of the total street network on energy consumption. The Plan concludes that, based on total vehicle-miles of travel, the recommended network results in slightly fewer miles traveled, at a substantially higher overall speed than the Existing Plus Committed network. Consequently, less fuel would be consumed with the recommended network, which includes a south arterial.

The City-County Planning Department indicates that growth is occurring and will continue to occur in the southern Great Falls area, although construction of a south arterial may accelerate the rate of growth. Increased travel time due to increased accessibility to community facilities, public institutions, and goods and services located in Great Falls should decrease total energy use related to motor vehicle operation per capita with the construction of a south arterial. The facility will improve movement of both existing and projected traffic by diminishing stops and starts and increasing overall travel speeds, increasing energy efficiency per vehicle-mile. In addition, proposed bicycle paths along portions of the south arterial should encourage energy conservation. However, unavoidable urban sprawl associated with construction of a south arterial and greater accessibility may promote longer distance trips and/or a greater number of trips, thereby reducing the potential benefits.

The demand for fuels in the United States far outstrips the production rates of domestic supplies; hence, much of the fuel resources consumed daily in the United States comes from foreign sources. This places a dependence upon these foreign sources which bears heavily upon economic stability and has obvious strategic implications. Several times during the past decade fuel supplies have been limited in many areas of the United States. Great Falls, according to several service station owners, has not experienced any supply problems but this does not mean fuel allocations to the area will not be a problem in the future.

Non-Fuel Resource Impacts. The presence of the highway will not affect the development of sand and gravel resources. However, construction of the project will call for vast quantities of sand and gravel which will have to be acquired locally. Alternative segments 4 and 5 both traverse a mined out gravel pit on the east side of the Missouri in the SE 1/4 of Section 24. Another mined-out gravel pit is located immediately north of alternate segment D in the southeast corner of Section 16.

The principal source of construction materials for the highway will probably be other nearby gravel pits such as the one located on the island terrace in the middle of Gibson Flats. This deposit alone should be more than adequate to supply the materials required for the highway's construction.

Wetlands

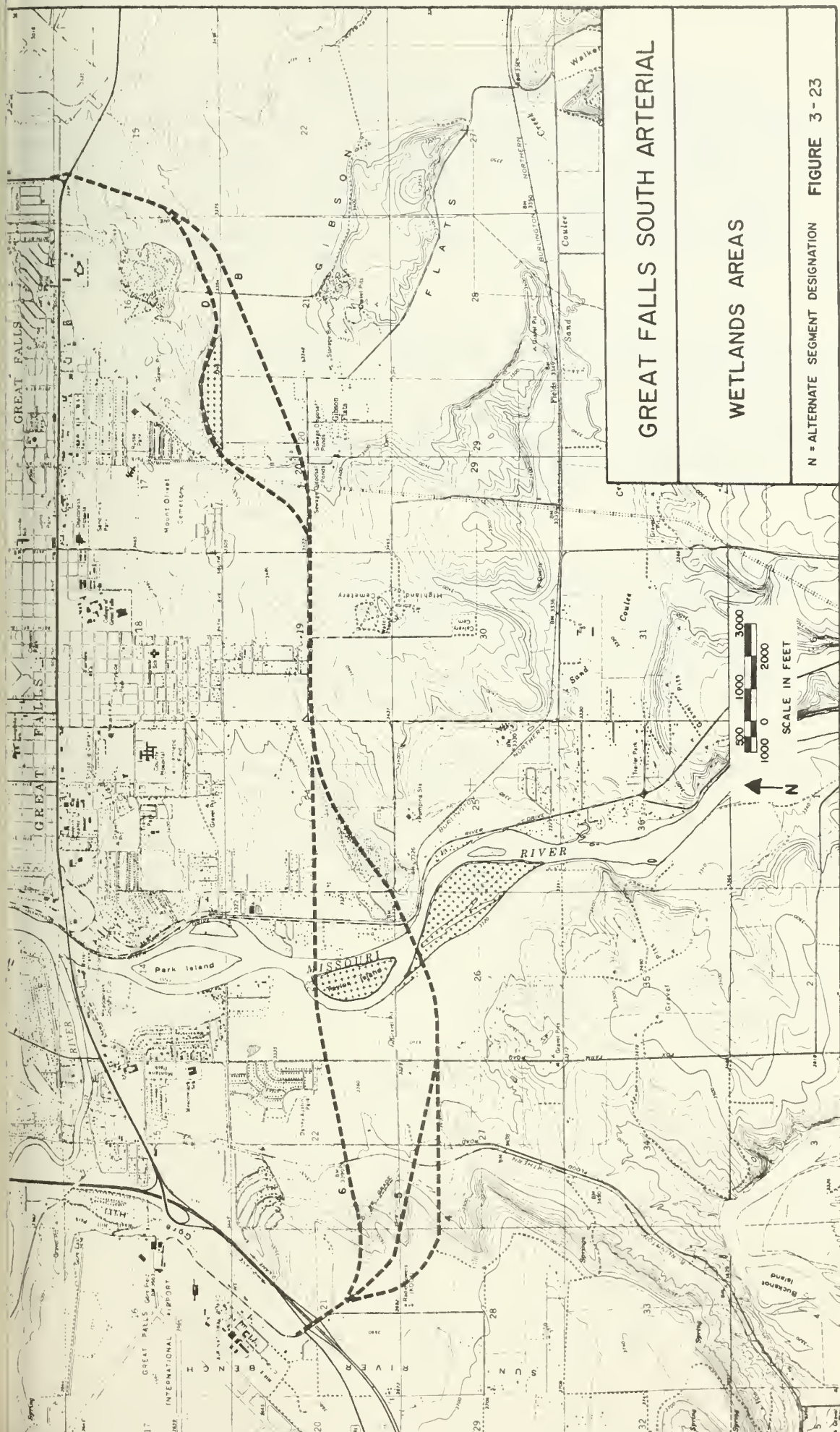
Existing Environment. Several land areas associated with the proposed south arterial route alternatives should be considered as wetlands under the terms and definitions of Executive Order 11990. This directive defines wetlands as follows:

Those areas that are inundated by surface or ground water with a frequency sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

Following on-site investigations of the project corridor, three areas were targeted as wetland areas. These include Taylor Island, a 49-acre island within the Missouri River; a lowland marshy area comprising approximately 18 acres on the west bank of the Missouri River south of Taylor Island that apparently was once a part of the River channel; and a marshy area resulting from poor drainage at the base of the bluffs on the north side of Gibson Flats. These wetland areas are shown on Figure 3-23. There presently are no wetland management programs for these areas. The U.S. Fish & Wildlife Service and the Montana Department of Fish Wildlife and Parks have been consulted regarding wetlands impacts and possible mitigation measures.

The term wetland includes a variety of areas that fall into one of five categories: (1) areas with hydrophytes and hydric soils, such as those commonly known as marshes, swamps, and bogs; (2) areas without hydrophytes but with hydric soils, for example flats where drastic fluctuations in water level, wave action, turbidity, or high concentration of salts may prevent the growth of hydrophytes; (3) areas with hydrophytes but non-hydric soils, such as margins of impoundments or excavations where hydrophytes have become established but hydric soils have not yet developed; (4) areas without soils but with hydrophytes such as seaweed-covered portions of rocky shores; and (5) wetlands without soil and without hydrophytes such as gravel beaches or rocky shores without vegetation. The wetlands in the project area fall into classification (1) above.

Impacts. The Missouri River crossing of alternate segments 4 or 5 would adversely affect approximately 4 acres of the wetlands on the west bank of the River. This old stream channel is probably the most productive wetland in the project area because it is frequently inundated by river overflows. The slough provides a water habitat for aquatic vegetation and fish and may be a significant seasonal spawning and nursery area. To minimize the wetland impact, the road alignment has been located as far north as is considered practical with the abutment and approach fill to be located on high ground outside of the wetland area. However, some piers will necessarily be placed within the wetland.



GREAT FALLS SOUTH ARTERIAL

WETLANDS AREAS

N = ALTERNATE SEGMENT DESIGNATION **FIGURE 3-23**

Alternate segment 6 adversely impacts approximately three acres of wetlands, two of which are located on the northern tip of designated parkland called Taylor Island. This could cause a serious impact to its potential value as a wildlife sanctuary, significantly impacting the most sensitive wildlife species. This bridge crossing will also impact approximately one acre of related wetlands on the Missouri River banks. This area will be lost. In order to minimize the impact to the Taylor Island wetland, the road alignment has been located across the extreme northern tip of the island. Again, some piers would be placed within the wetland area.

The wetland area on the north edge of Gibson Flats would be adversely impacted by alternate segment D. Impacts would result from the placement of roadway embankment fill in the wetland and from the 39th Street access, if implemented. The arterial would cover some 12 acres, eliminating about 25 percent of existing wetlands in the area. The value of these areas as wetlands is questionable, however, since development has already encroached upon much of the area. A drainage collector ditch was constructed in 1977 through part of Gibson Flats to this wetland area which has no doubt already impacted the area.

Several long-time residents of Gibson Flats stated that the marshes dry up in the summer months, reducing their total productivity. These farmers have never seen waterfowl or other uncommon wildlife inhabiting the wetland; upland game birds such as pheasant and quail are fairly common and blackbirds and wrens use the cattails for nesting. An on-site survey supported the residents' observations that the value of this wetland is marginal to wildlife other than those species adapted to urban proximity.

Alternate segment B will not directly impact any wetland areas. However a secondary impact to the wetland area north of Gibson Flats will result from the extension of 39th Street South as proposed.

If the "no action" alternative is selected no direct adverse impacts would result to the wetland areas. Possible secondary impacts to the wetland in Gibson Flats could result if the "no action" alternative is selected. The area is privately owned and could be drained or filled in favor of development in the future.

Table 3-11 summarizes the areal impact of the various alternatives on the wetland areas.

Table 3-11
WETLAND IMPACTS FOR SOUTH ARTERIAL ALTERNATIVES

<u>Alternative</u>	<u>Location</u>	<u>Total Wetland area, acres^a</u>	<u>Wetlands impacted acres^b</u>
4 or 5	Missouri River banks and slough	118	4
6	Missouri River Banks	b	1.1
	Taylor Island	49	2
B	none	0	0
D	Gibson Flats Marsh	33	12
No Action	none	0	0

Notes:

^aArea measured by planimeter from areal photographs and preliminary plans.

^bMissouri River bank total area not given because this wetland region extends along the entire river.

Source: Brown & Caldwell

Several alternative river crossings were considered for the Missouri River. The chosen crossing alternates were selected due to their perceived fulfillment of the transportation needs and their anticipated cost effectiveness. Optional crossing sites to the south did not load well under traffic loading projections and are not considered practical. Optional sites to the north would critically impact extensive tracts of developed land and are also not considered practical.

Alternate routes to the north of alternate segment D were considered as discussed in the Chapter 2, "ALTERNATIVES", but were not considered practical as it was felt they would be too close to 10th Avenue South, would cross too much prime commercial development property, would seriously impact existing development, and would not provide a good alignment for possible future extension to the east.

Wetlands Finding. Executive Order 11990, dated May 24, 1977, "Protection of Wetlands", established a national policy to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

As discussed above and in Chapter 2, "ALTERNATIVES", consideration was given to alternatives which would avoid the use of wetlands in the selection of "reasonable" or practical alternatives. The original alternatives considered included one which the Montana Department of Fish, Wildlife, and Parks felt would have the least impact on the Missouri River and associated wetlands. However, this was not among those considered "reasonable" as it would not meet the transportation needs of Great Falls.

The preferred alternative, Alternative 5-D, utilizes the most southerly of the two proposed alternate Missouri River crossing locations. Both of these crossing locations would result in some impacts to wetlands along the river. However, alternate segment 6, which crosses the river at the northern tip of Taylor Island, would result in much greater overall project impacts including impacts to Section 4(f) lands and displacement of families.

While alternate segment B would avoid direct impacts to the wetlands in the Gibson Flats area, this alignment would cross the Sand Coulee Creek floodplain. The impacts resulting from crossing the floodplain are felt to be equal to or greater than the impacts to the wetlands resulting from the preferred alternative. Alternate segment D would skirt the edge of the floodplain, touching only the extreme limits, and would not impact the floodplain. Also, alternate segment D is more favorable from a geotechnical viewpoint. Alternate segment B would require the construction of a long, moderately high fill across Gibson Flats. Due to the collapsible nature of the soils in the area, large settlements over an extended period of time could be expected with this alternate.

The preferred alternative would include all practicable measures to minimize harm to the wetlands. No embankments will be constructed in the wetland area adjacent to the Missouri River. The bridge structure will be constructed over the wetlands with only a few piers placed in the wetlands. Precautions will be taken to minimize turbidity, sedimentation, and changes in hydraulic characteristics of the channel. Construction operations will be scheduled to minimize impacts relative to fish spawning seasons. Any disturbed areas will be fully reclaimed with native vegetation. A Corps of Engineers 404 permit will be obtained for the placement of fill material, including cast-in-place concrete, within the Missouri River and for any fill material placed in wetlands. The U.S. Fish and Wildlife Service indicated they did not feel mitigation for the loss of wetlands in the Gibson Flats area crossed by alternate segment D was practical as the wetland has, to some extent, already been degraded. However, the project will be constructed so as to minimize adverse effects to this wetland.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed new construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

Flood Hazard Evaluation

Existing Environment. The two major watercourses in the project area are the Missouri River and Sand Coulee Creek. 100-year floodplain boundaries were identified for these two watercourses by the Corps of Engineers in 1974, and the U.S. Soil Conservation Service in 1973, respectively. The 100-year floodplain boundaries are shown on Figure 3-24.

The Missouri River floodplain is an active flow area. Some flood control storage is provided in upstream reservoirs. Both commercial and residential development exist in the floodplain in the project area.

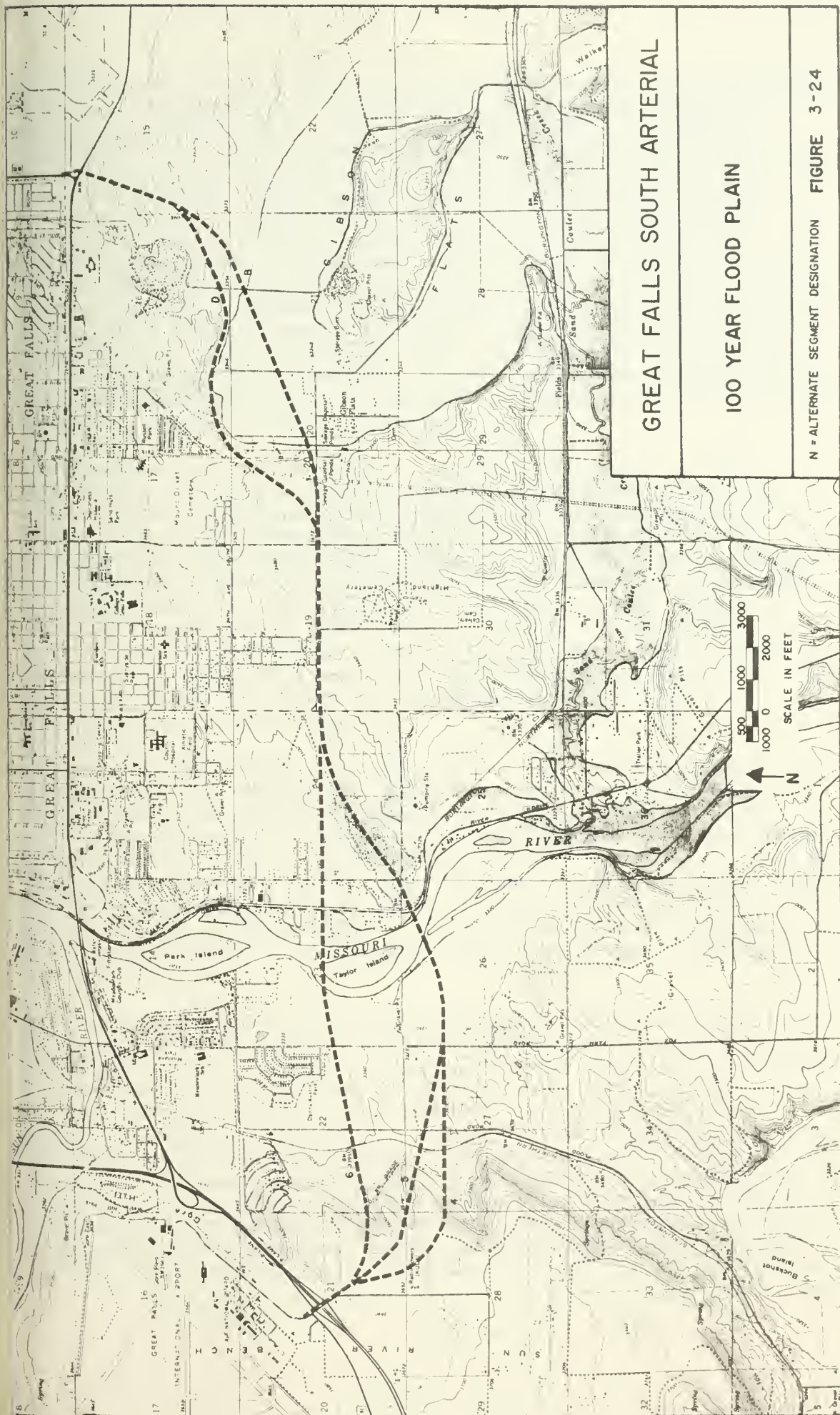
The 100-year Sand Coulee Creek floodplain extends into the Gibson Flats area. Gibson Flats has a history of flooding problems as the area is a natural depression having poor drainage. Flooding can result from three possible sources: runoff from the immediate drainage areas around Gibson Flats; floodwaters from Sand Coulee Creek, entering Gibson Flats from the east; and backup floodwaters from Sand Coulee Creek entering from the south of Gibson Flats.

The local drainage problem results from the absence of an adequate natural drainage channel from the area. Runoff is retained until ponding occurs and water is forced over a slight rise to the south into Sand Coulee Creek. Some relief was provided by a collector ditch, constructed in 1977, which runs basically north-south through the lowlands area and empties into Sand Coulee Creek. The growing development in the area further worsens the drainage situation, since developed areas contribute more runoff than do natural or more rural drainage areas.

Impacts. The proposed crossings of the Missouri River (alternate segments 5, and 6) will impact the 100-year floodway and floodplain. A computer model, using input data from the Corps of Engineers, was employed to check the effects of the proposed bridges on the flood elevations and boundaries.

The north crossing (alternate segment 6) requires placement of several piers within the floodway and approximately 1,000 feet of approach fill within the floodplain on the east side of the Missouri River. This fill would not encroach upon the floodway however. The approach fill across the floodplain has little effect on flood flows, since this overbank area conveys less than one percent of the 100-year flood under present conditions. The south crossing site (alternate segments 4 and 5) calls for placement of several piers within the floodway and floodplain, but the outments and any approach fill are outside of the present floodplain boundaries.

The two proposed alternate bridge crossings, as presently planned, are safely within the limitations set forth by the Montana floodplain regulations. The increases in the 100-year flood elevations caused by the structures are less than 0.1 foot in both cases, easily within the 0.5 foot maximum allowed by the state. Floodplain encroachment therefore does not appear to be a significant impact in the area of the Missouri River.



GREAT FALLS SOUTH ARTERIAL

100 YEAR FLOOD PLAIN

N = ALTERNATE SEGMENT DESIGNATION **FIGURE 3-24**

he proposed alignment for route alternate segment B would cross the Sand Coulee Creek floodplain just to the north of the present Gibson Flats community. Approximately one mile of the highway would be within the floodplain. This location of the highway would isolate a portion of the floodplain to the north, cutting it off from the main section of the floodplain. The lowest point on the finished roadway would be nearly 20 feet above the 100-year flood elevation, preventing overtopping by floodwaters. Since a potential flooding source exists on both sides of the proposed alignment (storm runoff from the north, Sand Coulee Creek from the south) drainage structures would be strategically located along the route to allow passage of floodwaters in either direction. These cross-drainage structures will allow floodwater exchange through the embankment as flooding develops and as flooding recedes. The structures will be sized and placed so as to provide adequate water movement during floods, avoiding prolonged storage in one area and eliminating differentials in water elevations on opposite sides of the highway.

Due to the nature of local drainage patterns, Gibson Flats is a flood storage area (as opposed to an active flow area), impounding water until it reaches an elevation high enough to flow out into Sand Coulee Creek. Placement of the highway embankment will reduce the storage capacity of the area by a small amount (approximately nine percent), but flood elevations are not expected to increase appreciably. The embankment does not affect the normal release point for floodwater from Gibson Flats. Floodwaters could therefore continue to flow out of the area as before, without an increase in the 100-year (or any other) flood elevation. The flooding situation in the Gibson Flats vicinity is presently a problem, but construction of the south arterial through the floodplain will not significantly add to this problem.

The second alternate route in the Gibson Flats area (alternate segment D) generally avoids the 100-year floodplain. Drainage structures would be placed to convey upstream runoff through the highway embankment near existing drainage patterns. Storm runoff will therefore enter the Gibson Flats floodplain much as it does presently. The structures would be sized to accommodate 100-year flooding with less than 0.5' of surcharging. The temporary surcharging is not considered to have a detrimental effect on the highway structure or local property. It is concluded that the south arterial alternatives will have minimal impacts on 100-year flooding in the Gibson Flats area.

Significant impacts on natural floodplain values include the loss of habitat and vegetation where fill and/or structures are required. The two most significantly impacted areas are the east bank of the Missouri River with alternate segment 6 and the Sand Coulee Creek floodplain with alternate segment B. The area to be potentially lost with segment 6 presently is occupied by residential units which are often considered incompatible floodplain development. The Sand Coulee Creek floodplain is an agricultural area which would suffer a permanent loss of productive cropland where the roadway crosses the floodplain. Incompatible floodplain development would be indirectly supported by alternate segment B which could induce further development within the area, particularly with the improved access at Shields Avenue (39th Street South).

Numerous surface runoff courses in the project area would be crossed by one or more south arterial alternatives. All cross-drainage structures (except those in Gibson Flats and the Missouri River crossing) are designed to accommodate 50-year flooding from the total upstream contributory area with essentially no impacts. The proposed structures are generally capable of handling 100-year flood events with a small amount of additional hydraulic surcharging. It is anticipated that this surcharging will result in minimal impacts on the road embankment, hydraulic structures, and neighboring lands.

Flood Plain Finding. Since any south arterial alternative must cross a designated floodplain, the proposed action is subject to the provisions of Executive Order 11988. This Order requires Federal agencies to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

There are no practicable alternatives to encroachment on the Missouri River floodplain. The crossing location associated with the preferred alternative, Alternative 5-D, would have less impact than that associated with alternate segment 6 because it does not require roadway fill within the floodplain. The preferred alternative avoids significant impacts to the Sand Coulee Creek floodplain because it skirts the edge of the floodplain, touching only the extreme limits.

The proposed action conforms to applicable floodplain protection standards. The Missouri River bridge structure and drainage structures in Gibson Flats are adequate to allow passage of floodwaters with minimal effect on the flood elevation. Bridge piers within the floodway will be designed to minimize floodwater impedance. Pier iceshields will be installed to combat damage from ice and minimize restriction of ice flow. Incompatible floodplain development will be controlled through the County Floodplain Zoning Regulations adopted by the Cascade County Commissioners on July 1, 1978 in conformance with Federal and State statutes. The Great Falls City-County Planning Departments advises the control measure has been effective in controlling floodplain development.

Stream Modification or Impoundment Impacts

The proposed action does not impound, divert, deepen or significantly modify the channel of the Missouri River. The alternate bridge structures crossing the Missouri River were analyzed for their potential hydraulic effects to the river flow and the 100 year floodplain. Results showed that the resulting effect would be minimal; that is, changing the 100 year floodplain less than .1 foot. The preferred alternative, Alternative 5-D, will result in the placement of several piers within the floodway and floodplain, but the abutments and any approach fill are outside the present floodplain boundaries. This alternative will also require the placement of fill in a wetland in the Gibson Flats area.

Coordination has taken place with the U.S. Fish and Wildlife Service as required by the Fish and Wildlife Coordination Act. The service concurred that the impacts to fish and wildlife resources would not be significant if proper precautions are taken during construction. The Service will review the applications for the Corps of Engineers 404 permits for the placement of fill material in the wetland area and in the Missouri River and will provide further comment on measures to minimize adverse impacts to fish and wildlife resources. The Montana Department of Highways will also coordinate with the Montana Department of Fish, Wildlife and Parks regarding pier placement to assure compliance with the Montana Stream reservation Act.

Air Quality

Existing Environment. In general, air quality in Great Falls is good. Total suspended particulate and carbon monoxide standards are violated occasionally, however - carbon monoxide more seriously than total suspended particulates. Great Falls wind conditions generally moderate pollutant buildups, thus reducing air quality standards violations.

Great Falls is recognized as one of the windiest cities in the United States. Figure 3-25, a wind rose for the Great Falls area, shows that the dominant winds are from the southwest and occasionally exceed 25 mph. The wind rose also shows the Great Falls area is calm (no wind) 14 percent of the time. Wind direction and speed are the dominant factors which influence an area's air pollution dispersion potential. Topography, temperature, precipitation, humidity, barometric pressure, atmospheric stability and the mixing depth of the wind also influence dispersion potential.

When air is extremely stable, an inversion is said to occur. Pollution released into a stable layer will be trapped and concentrated within that layer. If such an inversion is based on the surface, the pollution distribution will be greatly restricted, and high pollutant levels will occur near source areas. If an inversion layer is located above the surface, the inversion will act as a "lid," trapping and concentrating pollutants in the layer below. If the mixing layer is further confined by topographical features such as valley walls, the resulting pollution levels will be markedly higher. Thus the height of the inversion layer is an important parameter in the determination of pollution concentrations since it effectively limits the volume of the mixing layer.

Stable conditions occur in the Great Falls area occasionally during the winter season, primarily due to the effects of radiation flux. This is the phenomenon of very strong cooling of air masses such that the air becomes so stable that eddy exchange practically disappears and only radiation fluxes are left to accomplish heat exchange.

The Cascade County Air Pollution Control Program, part of the Health Department, has done considerable sampling in the the Great Falls area. Table 3-12 and Figure 3-26 show present and discontinued sampling sites.

Table 3-12
PRESENT AND DISCONTINUED SAMPLING SITES, GREAT FALLS

<u>Site</u>	<u>Parameters Measured</u>	<u>Duration</u>
Fire Station	TSP	Long-Term
Hospital	TSP, SO ₄	Long-Term
10th Avenue South	CO, TSP	Since 1977 (discontinued 1979)
North Kiwanis Park	TSP, particle size, SO ₂	New
Phillips Refinery	SO ₂	Only 1974

Source: Montana Department of Health and Environmental Sciences

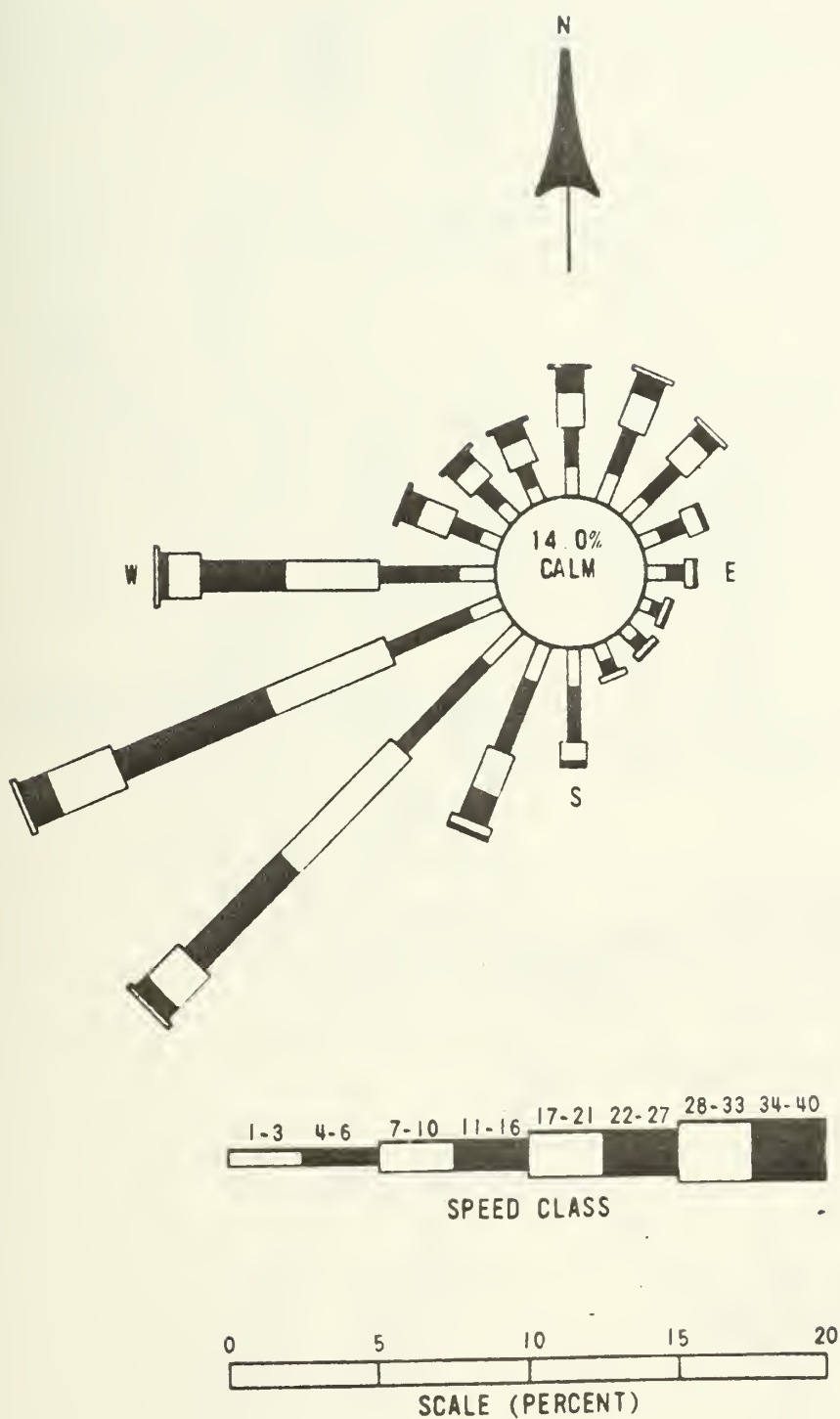
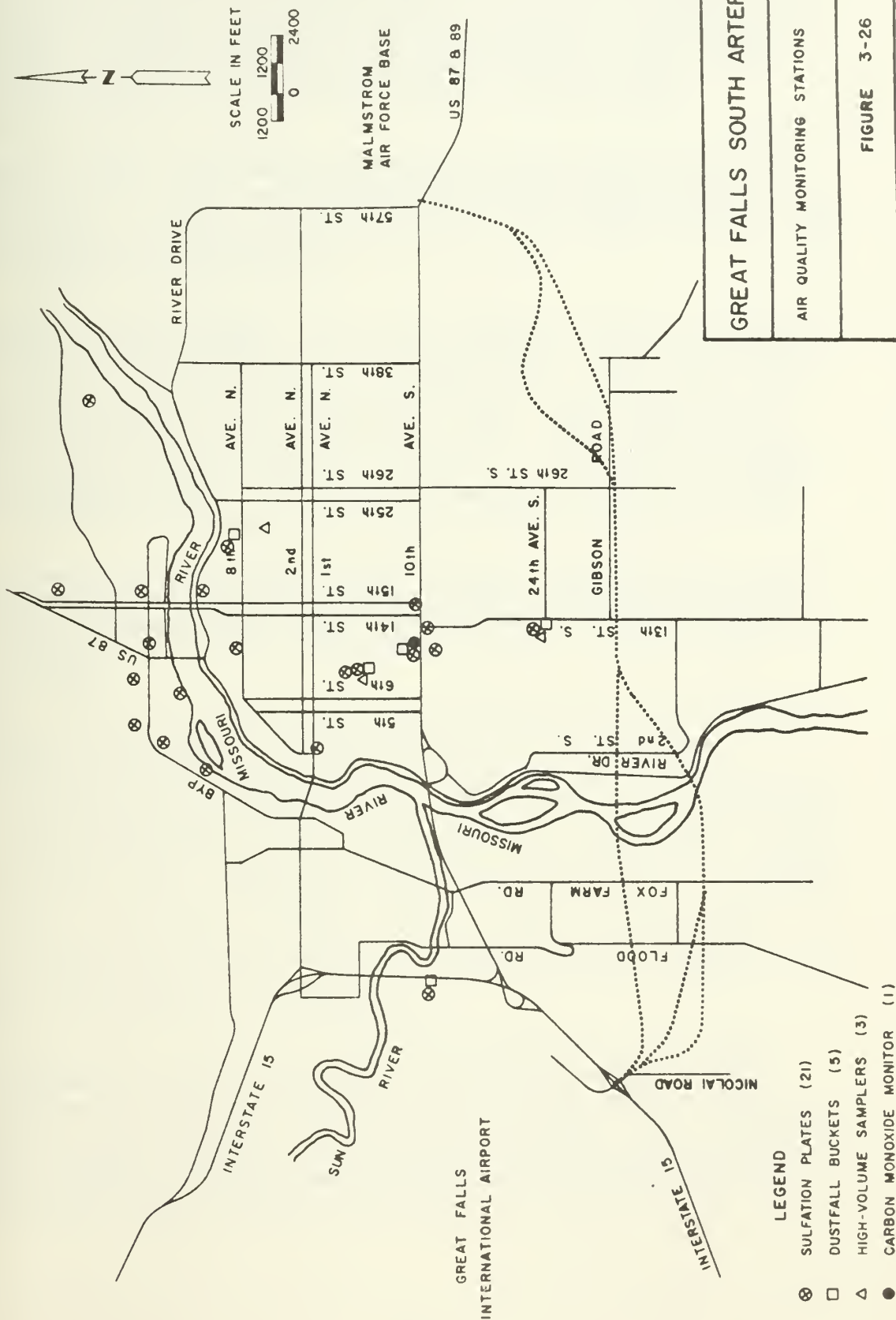


Figure 3-25. 10-year, 16-point Wind Rose
for Great Falls Area

GREAT FALLS - MONTANA



GREAT FALLS SOUTH ARTERIAL

AIR QUALITY MONITORING STATIONS

FIGURE 3-26

In the past air measurements have been made in Great Falls for total suspended particulates (TSP), carbon monoxide (CO), sulfur dioxide (SO₂), and some particle size and chemical elements. Ozone (O₃), nitrogen dioxide (NO₂), and hydrocarbons have not been measured. It is probable that ambient hydrocarbon and SO₂ concentrations would be higher in northern Great Falls due to refinery activities. Ozone and NO₂ concentrations should be low.

Considerable static sulfur oxide monitoring and some dustfall measurement have also been done. Sampling for sulfation is done using the Huey sulfation plate. Dustfall is measured using the gravimetric method, total suspended particulates using the high-volume sampler, and carbon monoxide using an indirect infrared analyzer.

The data for the area south of Great Falls indicates sulfation readings are well below the Montana ambient air quality standards. The high-volume sampler south of 10th Avenue South is located at the Cascade County Health Department, 1130 17th Avenue South. The 1978 annual average for total suspended particulates at this station was 54.66 ug/m³, measured in a total of 45 samples over the calendar year 1978. The dustfall readings at the same station have an average of 5.75 tons per square mile per month for the 12 months of 1978. The sulfation readings showed only a trace amount, less than .01 mg of sulfate per 100 square centimeters per day.

Standards for air pollution levels comparison have been adopted by both the federal government and State government. Federal standards are divided into primary standards which, when exceeded, have ill effects on human health and secondary standards which, when exceeded, can cause health and property damage.

The Great Falls downtown area has not always achieved the federal secondary standard for total suspended particulates, and is thus designated non-attainment for TSP. These higher concentrations are due partially to traffic in the congested downtown areas. There appear to be no consistent trends which might correlate with spring thawing and reintrainment of winter sanding material or with dry summer-fall dust conditions. However, it is felt that street sweeping and winter sanding contribute to high TSP levels. TSP increases in the south Great Falls area appear to correlate with southside development and with capacity traffic on 10th Avenue South. An inventory of 1977 particulate emissions in the Great Falls area indicates that fugitive dust contributes substantially to ambient particulate concentrations; see Table 3-13.

Very limited carbon monoxide data have been collected in Great Falls. Data collected at the 9th Street South/10th Avenue South monitoring station showed an arithmetic average for 1978 of approximately 2.5 parts per million of carbon monoxide over each 24-hour period. This station has reflected a number of periods where the 8-hour average is over 9 parts per million, violating the federal 8-hour standard for carbon monoxide. The typical range of these violations was between 9.5 and 14.2 ppm CO. The

10th Avenue South corridor has therefore been designated a non-attainment area for CO. Most of these violations occurred in the winter months of January, February and March. Comparisons of TSP, CO, and traffic counts have been made for 10th Avenue South. For the limited data studied, some correlation is shown between traffic and ambient CO concentrations on a daily basis, and even more so on an hourly basis.

Pollutant percentages of areawide emissions by source category are found in Table 3-14 and indicate the importance that transportation has to ambient air quality. Major traffic generators in Great Falls, where transportation-related pollutants could concentrate, include:

- Deaconess Hospital;
- Columbus Hospital;
- First National Bank;
- Northwestern Bank;
- U.S. Post Office;
- Cascade County Convalescent Hospital;
- Sears, Roebuck and Company;
- College of Great Falls;
- Holiday Village Shopping Center;
- Westgate Shopping Center;
- K-Mart; and
- Great Falls International Airport

mission Evaluation Methodology. The EPA has designed guidelines to evaluate the impact of an indirect source, such as a highway, on air quality. (EPA -450/4-78-001, Guidelines for Air Quality Maintenance Planning and Analysis, Vol. 9, Revised, Evaluating Indirect Sources, September, 1978). It is important to estimate whether such an indirect source may cause the national ambient air quality standards for carbon monoxide (CO) to be exceeded. The one-hour standard is 35 ppm CO, while the eight-hour standard is 9 ppm CO. To evaluate this impact, the potential incremental air pollution must be added to the background concentrations at the upwind edge of the site and to the contributions from locally generated emissions (i.e., other through traffic). The degree of impact will often depend on a length of time; the hour, day, or season must be considered.

Specifically, the indirect source evaluation methodology must consider both the worst case one-hour and eight-hour periods because it is a preliminary technique and the results are based on a very limited data base. Generally local CO contributions dominate the total CO concentration for the worst one-hourly cases while the worst eight-hourly cases (the average of eight one-hourly analyses) are frequently dominated by high background contributions of CO.

The network description and traffic demand volume are used to estimate the traffic flow characteristics and emissions are then calculated. Data requirements include traffic engineering characteristics such as number of

Table 3-13
GREAT FALLS PARTICULATE EMISSION INVENTORY, 1977

<u>Category</u>	<u>Particulate Emissions, tons per year</u>
Residential	4.4
Commercial/Industrial	14.0
Incinerator	1.6
Railroad/Aircraft	0.4
Auto exhaust	42.3
Unpaved dust	
Railroad yards	16.5
Urban streets	224.5
Commercial streets	88.7
Unpaved roads/Alleys	91.2
Cleared areas	4.1
Construction	84.1
Unpaved parking lots	2.6
TA	574.4

Source: Microinventory Results and Use of Empirical Model at Nonattainment Sites in Montana. A PEDCo Environmental Report.

Table 3-14
POLLUTANT EMISSION PERCENTAGES BY SOURCE CATEGORY

<u>Source Category</u>	<u>Percentages of areawide emissions by source category, 1970</u>		
	<u>CO</u>	<u>Hydrocarbons</u>	<u>NO_x</u>
Residential	0.3	0.5	1.9
Commercial/Industrial, including solid waste disposal	7.8	25.0	11.8
Transportation	90.0	73.5	85.5
Other	1.9	1.0	0.8
TA	100.0	100.0	100.0

Source: Table 7, Appendix E, Implementation Plan for the State of Montana.

lanes, road width, turning channels, type of intersection control, signal timing, percent of trucks and buses, and design speed. In addition, through and turning traffic volumes, demographic data, diurnal traffic patterns, yearly surface and upper-air meteorological data, and background and local air quality measurements are required. Emissions for an extended roadway are considered uniform and are computed on the basis of vehicle speed and volume. Emissions at intersections are the sum of those produced from non-stopping vehicles and those emitted over a finite length by stopping vehicles. All emissions are based on the updated (December 1977) Modal Emissions Model (Kunzelman, 1974, Report No. EPA -460/3-74-005, Automobile Exhaust Emission Modal Analysis Model). Adjustments for a base year of 1977, other calendar years, and a cold-start-hot-start-speed temperature correction are found using AP-42, Mobile Source Emission Factors (1978).

Once the emission inventory has been computed, the worst-case one-hour CO concentration resulting from each source is calculated by estimating the effect of atmospheric dispersion on actual concentrations at specified receptor locations. Variables include stability, receptor location, wind speed and direction, and terrain roughness. Dispersion estimates are usually at 1.8 m above ground level. Background concentrations are then added to source contributions to find the total CO concentration.

The most common technique for evaluating the air quality impact of proposed highway projects involves the use of mathematical models of pollutant dispersion. Models are used to quantify the relationship between emissions and air quality and to provide an estimate of the impact of new sources. The reliability of model estimates is totally dependent on the availability of an accurate and complete emissions inventory and an ability to describe pollutant dispersion and transport phenomena for the emissions and the area being analyzed. The representativeness of data depends on the proximity of the meteorological monitoring site to the area under consideration, its exposure, the area terrain, and the data collection time period.

Using the EPA methodology, emissions for a single vehicle (E_f , G veh⁻¹ m⁻¹) as a function of vehicle speed are first determined. This value multiplied by the vehicle flow rate (veh hr⁻¹) determines the free flow emission rate Q_f .

$$Q_f = E_f \times V \times (\text{gm m}^{-1} \text{ hr}^{-1})$$

The emission rate calculated is a reference value appropriate to vehicle emission rates for a given reference year (1977) under specified ambient characteristics.

The actual emission factors vary depending on vehicle type, calendar year, catalyst or non-catalyst, altitude, state (California or elsewhere), ambient temperature, percent of cold or hot starting vehicles, and vehicle speed. A correction factor (C_T) for these variables then multiplied by the Q_f will give a more accurate emission rate (QF').

$$QF' = QF (C_T)$$

To estimate the worst case condition for uninterrupted traffic flow on the south arterial, it was assumed that emissions (E_f), at a cruise speed of 45 mph, equal 0.01 grams CO per vehicle mile. Assuming the national average mix of vehicle types, the following weighted correction factors (C_T) were developed using Table 3-15.

Table 3-15
NATIONAL AVERAGE MIX OF
VEHICLE TYPES

	Normal	Peak hr	C_T' 1980	C_T' 1990
heavy duty diesel trucks	3.2%	1%	0.57	0.50
heavy duty gas trucks	4.6%	3%	6.56	3.95
light duty gas trucks	11.8%	8%	2.95	1.58
light duty vehicles	80.4%	88%	2.25	0.69

'Emission Correction Factors for low altitude region, 35% cold starts, 20% hot starts, 20°F ambient temperature.

Average weighted 1990 C_T = 0.94

Peak-hour weighted 1990 C_T = 0.86

Thus uninterrupted traffic on the proposed south arterial, using the maximum projected ADT value for year 2000 of 26,400 VPD with alternate segment 6, and estimating a 4:30-5:30 PM rush hour traffic volume of 3,000 VPH, assuming an average cruise speed of 45 mph, and utilizing a correction factor for year 1990 (C_T) of 0.86, the emission rate is:

$$Qf' = QF (C_T)$$

$$Qf' = (30 \text{ gm CO} \times V^{-1} \times m^{-1} \times \text{hr}^{-1}) (0.86)$$

$$Qf' = 25.8 \text{ grams CO } m^{-1}\text{hr}^{-1}$$

$$Qf' = 0.007 \text{ g } m^{-1} \text{ sec}^{-1}$$

This emission rate would be comparable for all proposed south arterial alternatives.

Air Quality Impacts. The proposed south arterial alternatives will cause both positive and negative long-term and short-term air quality impacts. Increases in automobile-generated pollutants will primarily occur within the project corridor; however, the entire southern Great Falls area will be impacted due to changes in traffic patterns. The major pollutants affecting ambient air will be carbon monoxide and particulates. All of the south arterial alternatives will generate roughly the same air pollution; however, Alternative 6-B will be greater because of greater projections of traffic.

Non-attainment has been designated for TSP in the downtown area of Great Falls only. The south arterial should help to accelerate traffic movement around Great Falls and help to reduce downtown congestion, thereby promoting a reduction of TSP. TSP increases will occur in the south arterial corridor; however violations of the air quality standards are unlikely.

To estimate whether CO concentrations will exceed the ambient air quality standards, a site-specific worst-case condition was analyzed. The location of this worst-case condition is on alternate segment 6 at Fox Farm Road. At this location suburban housing would border the roadway to the north and a schoolyard is located nearby.

The south arterial is considered to be a continuous or infinite line source on which the emission rate is uniform for at least a specified or minimum length of roadway. This minimum roadway length is a function of atmospheric stability, initial dispersion wind/roadway angle, and road/receptor separation. Nonuniformity of emissions beyond the minimum length will not affect the concentrations more than approximately 2 percent at the specified receptor location. The EPA HIWAY model has been used to estimate pollutant dispersion and predict the pollutant concentration at specified receptor locations.

The results of the infinite line source dispersion analysis based on worst-case assumptions indicate that the total one-hour CO concentration at a receptor 10 meters from the center of the south arterial at Fox Farm Road is 7.0 ppm. This is the ambient concentration attributable to continuous rush-hour traffic conditions on the proposed south arterial. The total CO level is obtained by adding this value to the background concentration. Data from the Ninth Street South/10th Avenue South monitoring station indicates an arithmetic average for 1978 of approximately 2.5 ppm CO over a 24-hour period. Considering this and the meteorological conditions (frequent high winds), it would be extremely difficult for the background CO level at the Fox Farm Road location to exceed 16 ppm. Therefore, the total CO level should not exceed the State standard of 23 ppm or the Federal standard of 35 ppm.

Worst-case conditions as calculated here are unlikely because the Great Falls ten-year wind rose indicates high average wind conditions (14 percent calm). In the winter months from November through late April, Arctic air occasionally covers the Great Falls area; however, due to proximity to the Rocky Mountains, the Arctic air is quite often pushed east by strong southwest winds, called "Chinook Winds." Careful study of the climatological summaries for Great Falls shows the correlation between strong southwest wind and warming temperatures. During the windy periods, the atmosphere is well mixed, hence there is little pollution problem. Pollution, therefore, has the greatest potential when stable Arctic air remains over the city for several days.

The above emission estimates for the worst case condition on the south arterial were developed assuming the full facility were constructed. While construction of the full facility is not now contemplated by the year 2000 due to funding restrictions, future upgrading of the facility to four lanes with full access control is planned. Emission estimates would be slightly higher at the Fox Farm Road location in the year 2000 due to the proposed stage construction sequence since access facilities will probably be at-grade. However the interim south arterial facility will generally exhibit uninterrupted flow characteristics as access locations will be spaced at approximately one mile intervals and access facilities will be designed to accommodate anticipated traffic volumes. It is felt that the emission evaluation results are generally indicative of the long range air quality impacts of the south arterial alternatives. Recent studies indicate that, as a result of improved emission controls on new vehicles, vehicular carbon monoxide emissions are being reduced by seven percent a year as the vehicle fleet changes. Therefore, attainment of State and Federal air quality standards for carbon monoxide should not be a problem with the proposed action.

To compare the proposed south arterial for the year 2000 with the "no action" alternative, one must compare projected 10th Avenue South CO concentrations for the year 2000 with and without the south arterial. The 10th Avenue South roadway differs from the south arterial in that it exhibits interrupted traffic flow conditions and may exhibit local wind effects. The HIWAY dispersion model is inappropriate for roadway configurations in which local wind circulations dominate. Parts of 10th Avenue South may have street canyon effects, where a vortex motion forms when the roadway angle exceeds 30° and the depth of penetration of the rooftop wind into the street is less than the average height of the upwind buildings.

The determination of emission rates for situations of interrupted traffic flow such as at signalized intersections involves the determination of so-called "excess" emissions. These are vehicular emissions that are generated over a finite segment of roadway as a result of idling, acceleration, or deceleration; they represent the excess emissions in that region beyond those which an equal number of freely flowing vehicles would emit at cruise.

Calculating worst-case conditions along 10th Avenue South is rather complicated, considering all the variables and assumptions that must be made. Assuming that air pollution concentrations are directly proportional to air pollution emissions and that year 2000 dispersion conditions will be similar on 10th Avenue South with or without a south arterial, one can predict future air pollution concentrations by predicting future air pollutant emissions.

Currently, 10th Avenue South has fourteen traffic signals, with maximum queuing due to left-hand turns at 26th Street South. Maximum average daily traffic counts for 10th Avenue South projected for the year 2000 with a

south arterial facility are on the order of 30,000 vehicles per day (VPD) between 20th Street and 25th Street. This is over 10 percent less than projected 1980 volumes at the same location (34,000 VPD). Without a south arterial, expected traffic volume at this location is 44,000 VPD. The posted speed limit along 10th Avenue South between Warden Bridge and 32nd Street South is 35 mph, increasing to 45 mph eastward to 57th Street South. Four lanes of traffic will move along 10th Avenue South through the 26th Street South intersection at an overall average travel speed of 24 mph, while two lanes of north-south traffic will cross 10th Avenue South on 26th Street South at an overall travel speed below 25 mph. Using only 10th Avenue South projections and applying a cruise emission of .017 grams CO per vehicle-mile and no correction factor for temperature, traffic mix, or percentage of hot-cold starts, daily emissions will be 510 grams CO per vehicle-mile with a south arterial and 748 grams CO per vehicle mile without. Projected north-south 26th Street traffic will be greater with the south arterial by up to 700 VPD, depending on the alternative alignment. Considering an additional background concentration component arising from traffic on the south arterial, heavier 26th Street intersection traffic, but less east-west 10th Avenue South traffic, possible street-canyon dispersion effects, and adjacent commercial activity, a worst-case analysis for this intersection would indicate projected higher ambient CO concentrations affecting pedestrian receptors without a south arterial.

Another key receptor area affected by traffic volumes is Fox Farm Road. Meadowlark School ground is adjacent to Fox Farm Road. Daily volumes are projected to be nearly 23,000 VPD without a south arterial and less than 14,000 VPD with this proposed roadway. On an emission-per-vehicle basis, this amounts to an average daily Fox Farm traffic CO emission volume of 391 grams CO per vehicle-mile (no south arterial) or 238 grams CO per vehicle-mile (with a south arterial). A worst-case analysis of this potential impact, using a peak noon-hour traffic volume, light winds blowing from a southeasterly direction towards the Meadowlark School ground, and considering the noon-hour activities of children in this playground, would result in proving that the degree of exposure to CO emissions is greater at this location without a south arterial roadway, and the receptor impact is potentially much greater. It is unlikely that the projected traffic combined with the historical dispersion characteristics would result in ambient CO concentrations that would violate federal standards.

There will be an increase in air pollution emissions along the proposed south arterial route but a reduction in pollutant emissions along 10th Avenue South and the existing arterial streets, as estimated from traffic projections. Significant receptor sites affected by the alternatives are the sidewalks along 10th Avenue South and the school playground on Fox Farm Road, where the public has access on a more or less continuous basis.

potential air pollution impacts will be similar for each of the proposed south arterial alternatives. Pollutant buildups may occur at grades and intersections common to all. Long uphill grades cause trucks to move slowly, impeding traffic and emitting more air pollution. Alternative 6B is the shortest route but the highest grades. It is nearest to Great Falls and therefore is projected to load with more vehicles. More sensitive receptors will be affected by this alternative (Meadowlark school, residential housing) than by the other alternatives.

Alternative 4B is the longest and flattest alignment. Alternative segments A and B are located farther south and away from the city of Great Falls than the other proposed alternatives. Automobile emissions generated from traffic on these southerly alignments would cause the least impact to ambient air quality in Great Falls.

Conformity with State Implementation Plan. Attainment and maintenance of the national ambient air quality standards is the primary responsibility of each state. Section 110 of the Clean Air Act requires each state to submit "State Implementation Plan" to EPA for the implementation, maintenance, and enforcement of primary and secondary air quality standards towards the end of achieving sufficient emissions reduction to attain and maintain the ambient standards. Clean air plans must be developed with the continuing cooperative and comprehensive transportation planning process mandated by federal law and with the general air quality maintenance planning process of the State Implementation Plan.

Part of the central business district has been designated a non-attainment area for TSP and the plan for TSP has been developed. Total suspended particulates in the ambient air in Great Falls are thought to relate primarily to fugitive dust and its movement due to transportation vehicles. Control strategies being implemented include street sweeping and flushing to reduce street dirt loading. Street sanding during winter months is thought to be the main cause for the high TSP levels.

The 10th Avenue South corridor and portions of the downtown area were designated non-attainment areas for carbon monoxide on September 9, 1980. The City-County Planning Department is in the process of developing a transportation control plan to alleviate the pollution. A study should be completed by September 9, 1981 to develop control strategies. Carbon monoxide control strategies must focus on reducing traffic congestion at major intersections and in downtown areas through traffic flow improvements. Another important element to be considered will be motor vehicle inspection and maintenance programs as EPA data indicate that many in-use motor vehicles do not meet emission standards for carbon monoxide.

The proposed action would be consistent with the objectives of the State Implementation Plan. By relieving traffic congestion along 10th Avenue South and its major arterials, control strategies for the transportation-related pollutants carbon monoxide and total suspended particulates will be enhanced, thereby helping the City of Great Falls to maintain "attainment status".

An analysis of the consistency of transportation plans and air quality plans in Great Falls is required by the Federal Highway Administration (FHWA) and the Environmental Protection Agency (EPA). A modified rollback procedure was used by the City-County Planning Board to predict future pollutant concentrations for the urban area on the basis of expected pollutant emissions. This analysis compares the existing plus committed Great Falls street network with the year 2000 Recommended Street Network. The recommended network includes a south arterial. Using emission factors from "Mobile Source Emission Factor Tables, FHWA Technical Advisory T6640.1," (1978) and assuming an average speed of 20 mph, a temperature of 40°F and 40 percent cold starts, average emissions per vehicle-mile traveled were calculated for hydrocarbons, carbon monoxide, and nitrogen oxides; see Table 3-16.

Table 3-16
GREAT FALLS TRANSPORTATION POLLUTANT EMISSIONS

	Percent ADT	Emission Factor, g/veh-m Pollutant and Year						Average Emissions/VHT Pollutant and Year					
		1980			2000			1980			2000		
		HC	CO	NO _x	HC	CO	NO _x	HC	CO	NO _x	HC	CO	NO _x
Automobiles	80	6.9	79.6	2.6	2.5	2.4	1.65	5.52	63.68	2.08	2.0	19.2	1.32
Heavy-duty trucks, over 6,000 lb GVW	5	8.6	96.1	2.7	3.2	37.4	1.8	0.43	4.81	.14	.16	1.87	.09
Heavy-duty gas trucks	7	25.6	263.2	10.4	10.5	110.9	6.7	1.79	18.42	.73	.74	7.76	.47
Heavy-duty diesel trucks	5	4.5	28.3	20.2	2.9	27	5.9	.23	1.42	1.01	.15	1.35	.30
Light duty trucks 608.5 K lb GVW	3	12.5	116	4.5	3.8	43.9	2.05	.38	3.48	.14	.11	1.32	.06
TOTAL								8.35	91.81	4.1	3.16	31.5	2.24

Source: Brown & Caldwell

Pollutant emission reductions are expected to occur by the year 2000 in all the important transportation-related pollutant categories, with carbon monoxide expected to show the greatest decrease. Calculations of projected ambient air quality in the Great Falls Transportation Study Area utilizing projected traffic volumes and roadway construction (South Arterial) indicates average ambient concentrations of CO, hydrocarbons, and nitrogen oxides will not violate 1979 existing federal standards.

Coordination with State and Local Agencies. The Air Quality Bureau of the Montana Department of Health and Environmental Sciences and the Great Falls City-County Health Department have been consulted regarding the south arterial project since the initiation of formal environmental studies. Earliest consultation took place in January and February, 1979. Both agencies furnished available baseline air quality data. These agencies were again consulted in September and October, 1979. In a letter dated September 28, 1979 from the State Air Quality Bureau, it was commented: "Since there are several alternatives still under consideration, it is difficult to make a precise determination of any possible air quality impacts. However, it does appear that no significant decrease in the ambient air quality will occur, but rather the project will serve to alleviate the air quality problems that presently exist in the Great Falls area."

Water Quality

Existing Environment. The potential for water quality impacts resulting from the proposed alternatives can be assessed as impacts to surface waters (the Missouri River and Sand Coulee Creek) and impacts to area groundwater from which many of the area residents draw their domestic water supplies.

The Missouri River is the municipal water supply source for the City of Great Falls with the source intake located downstream from the project corridor near 10th Avenue South. The water treatment facility is located directly east of the intake site. Water in the Missouri River in the project area is generally a hard calcium bicarbonate type with lesser concentrations of magnesium, sodium and sulfate. The river also supports various forms of aquatic and plant life which may be affected by water contamination. Water quality of Sand Coulee Creek, an ephemeral stream, is poor due to acid mine seeps from inactive coal mines south of the project area.

Available information indicates the area groundwater is a very hard mixed type with a dominance of calcium, sodium, magnesium, bicarbonate and sulfate ions. Groundwater is obtained from alluvial aquifers and sandstone and limestone aquifers of the Kootenai formation and possibly some beds of the Ellis and Morrison formation. Only the shallow bedrock aquifers are of concern as they are the main source for individual water systems and would be in hydraulic connection with areas possibly receiving highway contaminants. These shallow aquifers do occur in the project area.

Impacts. The potential for groundwater contamination exists where the water contacts either surface spills or runoff discharges. Probable contamination sources include motor vehicle fluids (fuel, lubricants, antifreeze, hydraulic fluids), hydrocarbon compounds, metals from leaded fuels, oxides from tires, herbicides from weed control operations, sodium chloride from de-icing compounds, and miscellaneous toxic compounds resulting from accidental spills due to highway accidents. These contaminants, however, would need to be present in large quantities or concentrations to affect groundwater quality. The potential impact to groundwater from these sources is expected to be minimal as large concentrations should normally not be present for any length of time.

Impacts to surface water can also result from the above mentioned sources. Storm drainage waters, primarily bridge runoff, can easily carry fugitive fluids and wear residues into the Missouri River. Additionally with heavy rains of prolonged duration, roadway runoff can carry contaminants into runoff waters and eventually into either Sand Coulee Creek, the Missouri River, and/or isolated pools of standing water.

There would be a remote potential for spillage of petroleum products and toxic chemicals by trucks on the Missouri River bridge in the event an accident occurred on the bridge. However, the south arterial will attract traffic which would otherwise use the Warden Bridge, therefore the potential would probably be no greater than for the no action alternative.

An enclosed bridge drainage system may help to reduce the potential for contamination of the river, however such a system would be very costly and difficult to maintain, particularly during the winter months and does not appear to be practical considering the remote potential for significant spillage and the dilution effect of the river flows.

Increased sediment loads to surface waters will most likely occur during the construction phase but could also occur for a short time following construction until slopes are revegetated or stabilized. Construction activities may affect aquatic life, particularly during spawning periods. Consultation with the operator of the Great Falls Water Treatment Plant established that even with heavy sediment loading occurring in the Missouri River in the spring months, the plant is able to perform the necessary filtrations. It is felt that the temporarily increased sediment loads of the Missouri River resulting from the south arterial would not present a problem.

The proposed alternative routes will have varying impacts on surface water quality. Alternate segments 4, 5 and 6 have generally equivalent potential for water quality impact as both of the proposed Missouri River crossing structures offer a source for contamination to be carried into the river with spills or storm water discharges from the bridge surface. The roadway runoff will, with each alternate segment (4, 5 and 6), have to be carried a fair distance to be deposited into the river. Impacts on surface water quality of the Missouri River are anticipated to be minimal due to the dilution effect of the large flows of the River. Contaminants entering the river from the south river crossing will have an increased opportunity to dilute before reaching the water treatment plant intake.

Alternate segments B and D offer only a remote potential for direct contamination of surface waters. Both alignments are located within the drainage area of Sand Coulee Creek, but neither has direct contact with the stream channel. Alternate segment B crosses the 100 year floodplain of Sand Coulee Creek and consequently has a greater opportunity for direct contamination in the event of a large magnitude flood. Alternate route segment B is also physically closer to the stream channel.

The "no action" alternative offers minimal potential for surface or groundwater contamination. With increased traffic loading on the Warden Bridge there will be increased runoff contaminants and increased spill potential.

Mitigation Measures. Mitigation measures to minimize the potential impacts to groundwater will include positive location of shallow aquifers so that strategies for impact avoidance may be developed.

Mitigation measures to lessen potential degradation of both groundwater and surface waters will include prompt attention to major pollutant spills, a comprehensively planned and implemented erosion control and revegetation plan, and prudent application of deicing salts. The contamination of groundwater and surface waters by vehicle borne contaminants should be minimal due to the relatively minor quantity available to enter ground and/or surface waters and the dilution effect of the large river flows.

Water quality for the Missouri River is monitored at the Great Falls Water Treatment Plant. These measurements can be used for comparisons with water quality during and after construction of the south arterial. Also, construction will be coordinated with the U.S. Fish and Wildlife Service and the Montana Department of Fish, Wildlife, and Parks to minimize impacts to aquatic life during construction.

Construction Impacts

Air Quality. Any of the route alternates, when under construction, will impact the air quality of the project area. During the construction phase, major air pollutants and their probable sources can be described as:

- Gaseous and particulate emissions from machinery and machinery operations;
- Fugitive particulate emissions from blasting, excavation, wind erosion on exposed cuts and fills and on-site materials treatment operations; and
- Indirect source emissions, both gaseous and particulates, resulting from support vehicles traveling to and from the construction site.

Gaseous pollutants are generally carbon monoxide, hydrocarbons, nitrogen oxides, and photo oxidants. All have direct or indirect impacts on human health and vegetation. Particulate emissions contribute specifically to respiratory disorders and interfere with light absorption when deposited on vegetation.

Generally the effects of air pollutants during construction are unavoidable but transitory until the construction is complete. Mitigation measures applicable include:

- the use of mobile spray equipment at the construction site;
- proper timing and rapid revegetation of exposed cut and fill slopes and waste and borrow areas; and
- vehicle speed restrictions on unconsolidated road surfaces.

An erosion control plan will be prepared for areas that will be without vegetative cover for an extended time period.

Noise. Increased ambient noise levels will be experienced during the construction period and will vary with the time of the construction and the proximity of the activity to the noise recipient. Construction noise also varies with the type of equipment being operated. Table 3-17 presents average noise levels for various types of construction equipment at a distance of fifty feet.

Table 3-17
APPROXIMATE NOISE LEVELS FOR
CONSTRUCTION EQUIPMENT

<u>Type of Equipment</u>	<u>Typical Sound Level dBA at 50 Ft.</u>
Dump truck	88
Portable air compressors	81
Concrete mixer (truck)	85
Jackhammer	88
Scraper	88
Dozer	87
Paver	89
Generator	70

Table 3-17
Continued

<u>Type of Equipment</u>	<u>Typical Sound Level dBA at 50 Ft.</u>
Piledriver	101
Rock drill	98
Pump	76
Pneumatic tools	85
Backhoe	85

Source: Federal Register 39 (121) (June 21, 1974): 22298.

The various alternatives would have similar impacts on ambient noise levels, although alternate segment 6, by virtue of being situated nearer to existing development, will have a greater impact potential than alternate segments 4 or 5. Similarly, alternate segment D will have a greater impact potential than alternate segment B.

The proposed project is scheduled to be constructed in phases over an extended period of time. Noise attenuation techniques, including scheduling of construction activities during daylight hours and requiring equipment noise dampers, can partially eliminate most of the irritating construction noise.

Water Quality. Significant water quality impacts could occur during the construction phase resulting from roadway cuts and fills. Changes to the groundwater levels could result if an aquifer is severed during cut and fill operations. Vulnerable areas include the Sun River Bench descent (Gore Hill) and the north edge of the Gibson Flats area where cuts and fills are anticipated. Identification of groundwater tables and aquifers will allow initiation of appropriate measures which will help minimize impacts. Truncated groundwater flows commonly cause slope instability, but the installation of drains can provide a measure of protection. Interception of aquifers during construction activities can also result in groundwater contamination. Identification of susceptible aquifers will help avoid this situation.

There will also be surface water quality impacts resulting from erosion on exposed slopes. During construction of the Missouri River crossing structure and following excavation operations, bared soil will be subject to wind and water erosion. Contamination will occur at either Sand Coulee Creek or the Missouri River with the latter being the ultimate receptor. To minimize these potential impacts an erosion control plan will be prepared and instigated early during the construction phase. Caution will be observed when working near the Missouri to avoid intensifying erosion potentials. Pier construction for the bridge structure will be scheduled during periods of low water turbidity. To avoid potential petroleum waste contamination, areas will be designated for storage of all hazardous wastes and waste accumulations will be properly disposed of.

Borrow and Waste Areas. The south arterial facility can generally be designed so that cut and fill quantities balance. Alternate segment B, though, would require approximately 100,000 yards of borrow material to cross Gibson Flats and provide access to 39th Street South at a level above the 100 year floodplain. Adequate borrow material would be available directly northeast of Gibson Flats. Borrow material removal will be subject to the rules and regulations of the Montana Open Cut Mining Act, necessitating a mine reclamation plan to be filed with the State. Impacts resulting to the borrow area or as a result of the borrow area would be minimal. Temporary site specific air pollution will probably occur during borrow operations.

Detours. Periodic use of detours will be necessary when construction occurs near existing roadways. Temporary impacts resulting from detours include air quality degradation, increased noise levels along the detour route and minor inconveniences to motorists and residents. These impacts will be minimized by proper construction phasing, selection of detour routes that avoid developed areas, separation of haul roads and detour roads, and measures appropriate to lessening air quality and noise impacts.

Wetlands. Construction activities will impact wetland areas as a result of increased water turbidity. Necessarily some wetlands area will be lost as a result of project implementation but this impact is unavoidable. Water turbidity will be temporary and not cause permanent damage. Temporary impacts will also result as piers are situated (alternate segments 4, 5 and 6) and as noise and activity interrupt the wetlands biotic ecology.

IMPACT/ALTERNATIVE COMPARISON SUMMARY

Table 3-18 identifies and discusses briefly the probable beneficial and adverse impacts identified for the various alternatives. The table does not present any new information; it is offered as a compact concise summary of the impacts previously discussed. It has the advantage of presenting the alternatives and projected impacts in tabloid form so to permit convenient visual comparison of the alternatives and impacts. Where an impact is projected to be equivalent for several alternatives, the impact is described in one block spanning all of the affected alternatives.

IMPACT/ALTERNATIVE COMPARISON SUMMARY

Alternative Impact Criteria	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D	No Action Alternative
Transportation	All of the six south arterial route alternatives will meet the identified transportation needs to reduce congestion on 10th Avenue South, provide an arterial route to improve access for future development in south Great Falls, and provide an alternative route for through traffic.						None of the transportation needs are met.
Traffic Volumes	With construction of the South Arterial, Year 2000 traffic on 10th Avenue South is projected to remain at about current levels. The range of projected Year 2000 average daily traffic (ADT) volumes for the South Arterial and for 10th Avenue South is presented for each of the alternatives. Detailed traffic projections are shown on Figures 2-5 through 2-10.						The No Action alternative infers continued high traffic volumes on 10th Avenue South which in the year 2000 would be in the range of 19,220 to 44,690 vehicles per day. See Figures 2-11 for detailed projections.
Design Options	South Arterial: 11,560-22,110	9,150-22,110	11,560-22,110	9,150-22,110	11,560-26,420	9,150-26,420	Not Applicable
	10th Avenue South: 10,570-30,160	11,290-30,160	10,570-30,160	11,290-30,160	10,570-29,190	11,290-29,190	

IMPACT/ALTERNATIVE COMPARISON SUMMARY
(Continued)

Alternative Impact Criteria	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D	No Action Alternative
Design Options (Continued)	<p>Staged construction will minimize the financial impact of project implementation while providing a facility to meet growing transportation needs. Key elements of this option include early acquisition of right-of-way for the south arterial, up-grading 10th Avenue South to temporarily reduce congestion until the south arterial is built, and initial construction of two lanes for the south arterial with at-grade intersections.</p> <p>While at-grade intersections can be designed at most locations to handle Year 2000 traffic, interchanges would provide operational benefits and would insure that the South Arterial will be able to meet transportation needs beyond the Year 2000.</p> <p>A diamond interchange and a partial cloverleaf interchange have been considered at 10th Avenue South and 57th Street. A diamond interchange would have lower right-of-way costs but construction cost would be greater than for a partial cloverleaf configuration. A partial cloverleaf would operate more efficiently but would require relocation of two commercial businesses.</p> <p>Design options for access locations include the addition of access at Flood Road and/or the deletion of access at 39th Street South extended. Access at Flood Road would reduce traffic on Fox Farm Road somewhat but would not significantly affect traffic volumes on I-315 or on 10th Avenue South. Access at 39th Street South would reduce traffic volumes on 10th Avenue South but would impact a wet-land area north of Gibson Flats.</p>						

IMPACT/ALTERNATIVE COMPARISON SUMMARY
(Continued)

Alternative Impact Criteria	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D	No Action Alternative
Length	8.92 miles	9.06	8.71	8.85	8.37	8.51	Not Applicable
Right-of-Way, Construction, and Engineering Costs for work planned to year 2000. (1979 dollars)	R.O.W. \$ 4,186,300 Constr. 9,077,000 Engr. 988,500 <u>Total</u> \$14,261,800	\$ 4,309,300 8,843,600 <u>972,800</u> \$14,125,700	\$ 4,036,300 8,781,600 <u>966,000</u> \$13,783,900	\$ 4,159,300 8,548,200 <u>940,300</u> \$13,647,800	\$ 4,887,200 10,012,600 <u>1,101,400</u> \$16,001,200	\$ 5,010,200 9,779,200 <u>1,075,700</u> \$15,865,100	No Impact
Social and Economic Impacts	<p>Positive Impacts: Improved transportation and safety, reduced 10th Avenue South traffic congestion, improved accessibility and convenience, increased development potential, improved economic base, improved fire and police protection and creation of a scenic highway.</p> <p>Adverse Impacts: Decreased property values in several residential areas and possibly personal aesthetic impacts.</p> <p>There will undoubtedly be an inducement for some population growth and commercial development. There will be short-term employment gains directly and indirectly related to the project. The viability of the CBD and 10th Avenue South business district should be enhanced. There will be physical neighborhood divisions and necessary utility line relocations. The project will obligate extensive financial resources but concurrently should foster increased property tax revenues.</p>						Secondary impacts to residents and businesses along 10th Avenue South due to traffic congestion.

IMPACT/ALTERNATIVE COMPARISON SUMMARY
(Continued)

Alternative Impact Criteria	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D	No Action Alternative
Relocation Impacts	5 residences 2 commercial 2 other	5 2 1	4 2 2	4 2 1	63 6 13	63 6 12	0 0 0
Visual Impacts	134 seriously impacted residences	103	135	104	176	145	0
	These visual impacts will be both short-term and long-term resulting from the physical presence of the facility and construction related visual impacts.						
Noise Impacts	None of the south arterial alternatives will predictably produce noise levels above the 67dBA FHWA design criteria outside the right-of-way. In some areas though, noise level increases exceed EPA designated criteria of a 10dBA increase over existing ambient noise levels. Alternate segments 4D and 5D would produce lower noise levels at major south arterial intersections than the other route alternatives. Alternate 6B would produce the most significant noise level increases.						Increased 10th Avenue South noise levels.
Land Use and Zoning Impacts	455 total acres required; 275 acres agri- cultural land	493 334	434 303	472 362	337 202	375 261	No impact

IMPACT/ALTERNATIVE COMPARISON SUMMARY
(Continued)

Alternative Impact Criteria	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D	No Action Alternative
Historical and Cultural Sites Impacts	All of the South Arterial alternatives will cross the Lewis and Clark Portage, a National Historic Landmark. The impact will be significant where the South Arterial crosses the portage route in Section 19, T20N, R4E since the natural setting will be altered. However, the natural setting has already been disturbed by cultural developments to some extent and no physical evidence of the portage remains.						No direct impact would result from this alternative. However, future development will alter the natural setting and impact the Lewis and Clark Portage landmark.
Section 4f Properties Impact	The previously discussed Lewis and Clark Portage will be impacted by all of the South Arterial alternatives.						No impact
	These alternatives in total will not directly impact any designated park or recreation land. They would visually impact Taylor Island and the future River frontage park site.	These two alternatives would directly impact Taylor Island, the River frontage park site and the Grande Vista School site. They would indirectly impact Danny Austin Park visually and by increased noise.					

IMPACT/ALTERNATIVE COMPARISON SUMMARY
(Continued)

Alternative Impact Criteria	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D	No Action Alternative
4f Properties Impact (Continued)					These alternatives would require two acres from Taylor Island, 16 acres from the River frontage park, and nearly all of the school site which is not specifically a 4f property		
Soils Impacts	Various amounts of soil resource will be lost by the implementation of a south arterial. Soil will be transferred during cut and fill operations. Any soils limitations can be overcome with proper engineering.						No impacts
Mineral Resources Impacts	The Great Falls area coal resources would not be affected by the project. Minor clay resources would be lost but the loss would be minimal. Long term ground-water impacts are not anticipated but the potential for impacts increases slightly. Adequate gravel and sand deposits are available for construction.						No impact
Vegetation and Wildlife Habitat Impacts	Alternatives 4B, 4D, 5B, and 5D would require the removal of shoreline vegetation and wildlife habitat where the Missouri River is to be crossed.				These two alternatives require the removal of both shoreline vegetation and the disturbance of approximately two acres of Taylor Island's		Future development in the South Great Falls area will continue to encroach upon

IMPACT/ALTERNATIVE COMPARISON SUMMARY
(Continued)

Alternative Impact Criteria	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D	No Action Alternative
Vegetation and Wildlife Habitat Impacts (Continued)	vegetation and wildlife habitat.						wildlife habi- tats, reducing the valuable habitat that still exists.
	The eastern continuation of all of the alternatives will require the removal of certain amounts of native vegetation in Gibson Flats. No rare or endangered species are known to frequently inhabit the project corridor. Aside from from direct impacts to vegetation, wildlife and wildlife habitat adjacent areas will be indirectly impacted as a result of noise and activity which could result in the loss of wildlife to the area.						
Energy Resources Impacts (Expressed in BTUs per vehicle mile)	Between 4D and 6B	<u>Longest Route</u> 6,350	Between 4D and 6B		<u>Shortest Route</u> 6,265	Between 4D and 6B	6,815
Wetlands Impacts	These four alternatives would affect approximately 4 acres of wetlands along the west bank of the Missouri River. These two alternatives would impact approxi- 3 acres of wetlands; 2 acres on Taylor Island and 1 acre of river bank wetlands along the Missouri River.						No direct impact. Secondary impacts could result if privately owned wetlands are drained or filled in favor of development.

IMPACT/ALTERNATIVE COMPARISON SUMMARY
(Continued)

Alternative Impact Criteria	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D	No Action Alternative
Wetlands Impacts (Continued)	A secondary impact will result to the north Gibson Flats wet-lands if the 39th Street access is implemented.	This alternative would impact 12 acres of wet-lands in north Gibson Flats. Elimination of the 39th Street access would lessen the impact.	Same as 4B	Same as 4D	Same as 4B	Same as 4D	
Flood Hazard Evaluation	All of the alternative routes would impact the Missouri River, 100-year floodplain by virtue of the River crossing structure. Computer models determined that none of these impacts would be significant. Alternate routes 4B, 5B and 6B would bisect the Sand Coulee Creek floodplain resulting in minimal impact.						No impact
Air Quality Impacts	Site-specific worst case analyses indicate that neither Federal nor State Air Quality Standards would be violated as a result of increased traffic volumes or redirected traffic patterns. In all probability air quality will improve on 10th Avenue South due to the decreased traffic load.						Continued Air Quality Impacts on Tenth Avenue South

IMPACT/ALTERNATIVE COMPARISON SUMMARY
(Continued)

Alternative Impact Criteria	Alternative 4B	Alternative 4D	Alternative 5B	Alternative 5D	Alternative 6B	Alternative 6D	No Action Alternative
Water Quality Impacts	<p>With all the alternative routes the potential for water quality impacts exists. Groundwater quality impacts can result if major road excavation cuts intercept groundwater aquifers or as a result of roadway surface contaminants seeping into the groundwater regime. Surface waters may become contaminated as a result of construction generated sediments, surface spills getting into the runoff channels, and roadway contaminants being discharged during stormwater runoff into the waterways. The potential for contamination is greater near the Missouri River than near Sand Coulee Creek but the dilution effect of the Missouri would counteract most contaminations.</p>						<p>Increased traffic loading on the Warden Bridge will result in increased runoff contaminants and increased spill potential.</p>
Construction Impacts	<p>Construction activities will result in short term impacts to air quality, noise, water quality, and wetlands. Alternatives 4B, 5B, and 6B will require the use of approximately 100,000 cubic yards of borrow for the Gibson Flats crossing. Periodic use of detours will be necessary when construction occurs near existing roadways.</p>						No impact

CHAPTER 4 - FINAL EIS CIRCULATION LIST

CHAPTER 4 FINAL EIS CIRCULATION LIST

This statement is distributed to the following federal, state, and local agencies and officials, and other private organizations and individuals. (Those agencies or individuals that submitted comments on the Draft EIS are identified by an asterisk.)

- | | |
|--|--|
| <p>* Federal Housing Administration
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301 South Park Avenue, Drawer 10095
Helena, Montana 59601</p> <p>* U.S. Department of the Army
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7410 U.S. Post Office and
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Attention: Bruce Blanchard,
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|--|--|

State Agencies, continued

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32 South Ewing
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Department of Natural Resources
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Environmental Quality Council
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Cascade County Courthouse
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Great Falls, Montana 59405

Cascade County Extension Agent
Attn: Joseph W. Morris, Chairman
P.O. Box 6790
Great Falls, Montana 59406

Cascade County Planning Board
Attn: Jim Yeagley, Director
County Courthouse
Great Falls, Montana 59401

* Great Falls City-County Planning
Board
Attn: John R. Richards, Director
Civic Center
P.O. Box 1609
Great Falls, Montana 59403

School District (1)
District Chairperson
Howard A. Caare
P.O. Box 2428
Great Falls, Montana 59403

PRIVATE ORGANIZATIONS AND INDIVIDUALS

Fred Alcon
P.O. Box 6505
Great Falls, Montana 59406

Marie Boyd
P.O. Box 1241
Great Falls, Montana 59401

Burlington Northern Railroad, Inc.
Rocky Mountain District
Donald M. Nettleton, Director
Timber and Land Management
700 South Avenue West
Missoula, Montana 59801

Cascade Electric
903 10th Avenue North
Great Falls, Montana 59401

Private Organizations and Individuals (Continued)

Judy Cocking
Route 4, Box 246 C
Great Falls, Montana

Dr. S. Dacks
RR4, Box 265
Great Falls, Montana

Nadine Diekhans
RR4, Box 248 D
Great Falls, Montana

Anne Fleming
Route #4, Rolling Hills
Great Falls, Montana

Mr. Richard P. Graetz
P.O. Box 894
Helena, Montana 59601

Great Falls Chamber of Commerce
P.O. Box 2127
Great Falls, Montana 59403

Great Falls Gas Company
P.O. Box 2229
Great Falls, Montana 59401

Dr. Don Joyner
Route 4 South, Box 248 B
Great Falls, Montana

Erin Kolman
Route 4, Box 273
Great Falls, Montana

Jeanne Mangold
Route 4, Rolling Hills
Great Falls, Montana

Wilma McClure
Route 1, West
P.O. Box 236 B
Great Falls, Montana

Robert E. McPeck
601 Grizzly Drive
Great Falls, Montana 59404

Mr. & Mrs. Barry Michelotti
604 Grizzly Drive
Great Falls, Montana 59405

Montana Automobile Association
P.O. Box 4129
Helena, Montana 59601

Montana Power Company
40 East Broadway
Butte, Montana 59701

Montana Sand & Gravel
Lewis C. Felker, Office Manager
P.O. Box 1341
Great Falls, Montana 59403

Montana Stockgrowers Association
Office of the Secretary
P.O. Box 1679
First National Bank Building
Helena, Montana 59601

The Montana Wildlife Federation
P.O. Box 4373
Missoula, Montana 59806

Mountain States Telephone
Attn: F.R. Ketron, Staff Supervisor
P.O. Box 1716
Helena, Montana 59601

* Rivershore Mobile Home Park
Route 2, South
Great Falls, Montana

Fred Root
3512 Grizzly Court
Great Falls, Montana 59404

Sierra Club
Upper Missouri Group
c/o Mr. Jack Schmidt
P.O. Box 515
Helena, Montana 59601

Mr. Matt Smerker
Route 2, South
P.O. Box 868 A
Great Falls, Montana

* Mr. & Mrs. R.W. Solberg
RR4, Box 279
Great Falls, Montana

Mrs. W.E. Sullens
Route 4, Box 278
Great Falls, Montana

Private Organizations and Individuals (Continued)

* Mr. Leonard Wadsworth
RR 450, Box 572
Great Falls, Montana

The Wilderness Society
4260 East Evans Avenue
Denver, Colorado 80222

Sally Williamson
RK4, Box 248 A
Great Falls, Montana

Yellowsotne Pipeline Co.
Box 185, Parkwater Station
Spokane, Washington 99211

CHAPTER 5 - COMMENTS AND COORDINATION

CHAPTER 5 - COMMENTS AND COORDINATION

INTRODUCTION

Early in the project planning, efforts were initiated to coordinate with appropriate local, State, and Federal agencies for assistance in the identification of reasonable alternatives; evaluation of social, economic and environmental impacts; and evaluation of measures to mitigate significant adverse impacts resulting from the proposed project. In order to accomplish this interagency coordination and insure continual public awareness and involvement in the project planning process, a project steering committee was formed to review project planning and environmental assessment efforts. Additionally, monthly meetings were held with the Great Falls Transportation System Planning Technical Advisory Committee (TAC) to present progress reports and coordinate this project with area transportation planning efforts. The general public was given formal opportunities to comment at two public information meetings and a public hearing held in Great Falls.

COORDINATION

Coordination efforts were initiated early in the planning study/EIS process to identify significant issues regarding the proposed action. Direct mailings dated March 22, 1979 and August 9, 1979, solicited input from affected federal, state and local agencies. Additionally, specific agencies were consulted as required to assure compliance with applicable regulations. Coordination efforts are discussed throughout this statement. The U.S. Army Corps of Engineers agreed to serve as a cooperating agency on November 21, 1979. Copies of pertinent correspondence can be found at the end of this Chapter.

One meeting was held June 6, 1979 with the MDOH Impact Evaluation Group, which is composed of members from the State of Montana Department of Natural Resources and Conservation; Department of Community Affairs; Department of Highways; and Department of Fish, Wildlife and Parks. In addition, an FHWA representative is in the group. Also, two meetings were held with City and County officials in Great Falls on May 22, 1980 and November 12, 1980 to present local decision makers with updated information regarding the various alternatives and their impacts.

The project steering committee, composed of officials from the City of Great Falls, Cascade County, the Federal Highway Administration (FHWA) and Montana Department of Highways, (MDOH) reviewed progress on the interactive planning process monthly during the study phase. Nine review sessions have been held to date to evaluate project progress. This committee was the primary coordinating body for the south arterial planning study and the project's environmental assessments. Although the meetings were not publicized, the information was always available to the public.

Project updates have been given at ten Great Falls TAC meetings to date, at which input was solicited from the committee directly and indirectly from the public as the monthly TAC were regularly scheduled public meetings. These two committees provided valuable input regarding access availability, route alignment alternatives, and impact considerations.

The Draft EIS was approved for circulation on January 23, 1980. A notice of availability of the Draft EIS appeared in the Federal Register on March 7, 1980. Copies of comments received and appropriate responses can be found later in this Chapter. All comments were considered in the preparation of this Final EIS.

PUBLIC INVOLVEMENT

Public involvement in the planning and impact assessment was formally solicited on three occasions. Public information meetings were held April 5, 1979 and August 21, 1979 at Sunnyside Elementary School in Great Falls with nearly 200 people attending the two public meetings. Good participation was received from citizens with primary concerns being the potential relocation of residents and homes and the personal impacts of the various route alignments on residents. Those living in the immediate vicinity of the proposed alignments expressed the contention that they chose to live in this particular area because of its undeveloped, scenic nature and a major arterial highway would degrade their neighborhood.

Written comments were solicited also at the public meetings. Few comments were received and those that were received were evenly divided between those supportive of the south arterial and those opposed to the facility. The Great Falls Area Chamber of Commerce registered their support of the south arterial in a letter dated August 22, 1979. The Chamber noted they feel the project will have a beneficial effect on relieving traffic congestion, particularly in the Fox Farm area and 10th Avenue South. Two letters were received from public agencies voicing specific objections. A letter from the Great Falls Park and Recreation Department registered objection to any alignment requiring taking of designated parkland. A letter from the Great Falls Public Schools registered objection to impacting a designated school site within the project corridor.

Additional public comments were received following circulation of a questionnaire designed to establish socioeconomic characteristics of the potentially impacted area. The questionnaire in addition to requesting demographic information, requested comments in general concerning the south arterial project.

On January 8, 1980 a resolution objecting to the proposed South Arterial was received containing a total of 87 signatures of residents of the Southwest Great Falls area. The resolution states that their

opposition is based on concern for the destruction of personal property, relocation of directly affected residents, reduction of property values, increased noise pollution, increased air pollution, safety of residents, inadequacy of feeder roads to handle existing traffic, disruption of their privacy and lifestyle, mental anguish, and concern for wildlife and for the natural scenic beauty of the area. The resolution offers as alternative suggestions, the improvement of 10th Avenue South to handle increased traffic, or the utilization of the existing north bypass.

A public hearing was held in Great Falls on May 1, 1980 to afford individuals and public and private agencies an opportunity to comment on the content of the Draft EIS. At the public hearing the transportation planning process in Great Falls was explained, the important findings of the planning study and the significant impacts identified in the Draft EIS were presented, and the Montana Department of Highways right-of-way acquisition policies were explained.

Comments were expressed both in favor of and against specific alternatives and the proposed action in general. A hand count of the majority of those in attendance indicated that about one fourth would want to see a south arterial be built and about three fourths would not want to see anything built. Many people questioned the traffic projections and the need for the proposed action. Many objected to specific alternatives because they would be impacted or felt the project was too close to developed areas. Others expressed concern about project costs, possible increased traffic volumes on feeder streets, noise, and air pollution. Those favoring the proposed action noted traffic congestion on 10th Avenue South and the need to tie down the location of the roadway as soon as possible before the south Great Falls area develops further.

The preferred alternative was selected only after careful consideration of the public hearing transcript. The concerns addressed by the public and various agencies are addressed throughout this Final EIS.



DEPARTMENT OF THE ARMY
OMAHA DISTRICT CORPS OF ENGINEERS
6014 U S POST OFFICE AND COURTHOUSE
OMAHA NEBRASKA 68102

MROPD-A

21 November 1979

Mr. H. N. Stewart
Federal Highway Administration
Federal Office Building
301 S. Park, Drawer 10056
Helena, MT 59601

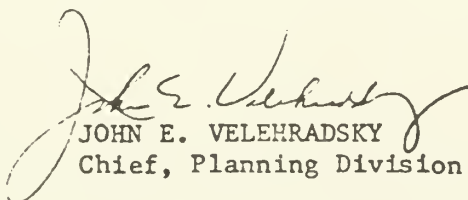
Dear Mr. Stewart:

This letter is in response to your letter of 30 October 1979 regarding preparation of an Environmental Impact Statement (EIS) for the proposed Great Falls South Arterial Highway. Since a Section 404 permit will be required, we are agreeable to serving as a cooperating agency. We would be pleased to provide review assistance and technical counsel as necessary.

We have reviewed the surface drainage study as you requested. The drainage study represents a fairly comprehensive coverage of most of the issues which should be addressed in the surface drainage portion of the EIS. Our primary concern is that the report is too general regarding the possible impact of the proposed highway on flooding on Gibson Flats and on the wetlands on Gibson Flats and along the Missouri River. Assuming these sections are adequately strengthened, as you indicated in your letter, we would have no further concerns. The EIS should address Executive Order 11988 on floodplains and Executive Order 11990 on wetlands and provide assurances that the proposed arterial project is in compliance.

If we can be of any further assistance, please contact me or Mr. Robert Roumph (FTS 864-3135) of my staff.

Sincerely,


JOHN E. VELEHRADSKY
Chief, Planning Division

Consultation Correspondence



City of GREAT FALLS Montana 59403

P.O. BOX 5021

TELEPHONE 406/727-5381

February 6, 1979

Dick Jacobson
HKM Associates
P.O. Box 31318
Billings, Montana 59107

Dear Sir,

We would like to inform you that we do not have any sewer, water or storm sewer lines that would be affected by the proposed Great Falls South-side Bypass, at the present time.

If you require any more detailed information please feel free to contact our office.

Very truly yours,
Stewart E. Pearson
City Engineer

By K. L. Jorgensen

Inspector

KJ/kw

CITY-COUNTY HEALTH DEPARTMENT

1130. 17TH AVE. SOUTH
GREAT FALLS, MONTANA 59403

BOARD OF HEALTH
CITY-COUNTY HEALTH DEPARTMENT
SUPERINTENDENT OF HEALTH
REPRESENTATIVE OF LOCAL SOCIETY
REPRESENTATIVE OF DENTAL SOCIETY

February 13, 1979

Richard Jacobson
HKM Associates
P. O. Box 31318
Billings, Montana 59107

Re: Great Falls South Aerial

Dear Mr. Jacobson:

Enclosed please find the aerial photo of the area south of Great Falls with the community water systems and community sewer systems shown in red. Attached is the list corresponding to these numbers describing the type of water or sewer system.

If you have any further questions, please feel free to contact our office.

Sincerely,

CITY-COUNTY BOARD OF HEALTH

By Darrell J. Furan
Registered Sanitarian

DJF/tag
Enclosures

761-6112

1. Gore Hill Water District (community well - approximately 100 users).
2. Park Garden Estates Water Supply (community well - approximately 15 users).
3. Big Sky Mobile Home Park (community well and community drainfield - approximately 20 users).
4. Country Lanes Mobile Home Park (community well and community drainfield - approximately 50 users).
5. Missouri Meadows Trailer Court (community well and community drainfield - approximately 30 users).
6. Rivershore Mobile Home Park (community well and community drainfield - approximately 50 users).
7. Pearson Addition (community sewage lagoon - approximately 17 users).
8. Rada's Trailer Court (community well and community drainfield - approximately 8 users).
9. Mobile Home Terrace (community well and community lagoon - approximately 90 users).
10. KOA Campground (community well and community drainfield - approximate 85 users).

FOR MR. ART CLARKSON
AND MR. WILLIAM HOFFSTETTER

*in box 3138
 buildings near
 5900 park
 5900*

(406) 243-4334 259-1593

February 28, 1979
 2M051.102B

Mr. Art Clarkson
 Montana Dept. of Health
 Water Quality Bureau
 555 Fuller Avenue
 Helena, Montana 59601

Dear Mr. Clarkson:

As mentioned in our phone conversation, I am sending you names and addresses of well owners in the south Great Falls area. Could you please send us copies of any water quality analyses you may have on these wells? Thank you.

Sincerely,

HWA ASSOCIATES

Wm Hoffstetter

William Hoffstetter

WH:bct



DEPARTMENT OF THE ARMY
 OMAHA DISTRICT, CORPS OF ENGINEERS
 8014 U.S. POST OFFICE AND COURTHOUSE
 OMAHA, NEBRASKA 68102

MQOPU-P

1 March 1979

Mr. Michael J. Wherley
 HWA Associates
 P. O. Box 31318
 Billings, Montana 59107

Dear Mr. Wherley:

This responds to your letter of 14 February 1979 requesting information on water quality, fisheries, flow characteristics, etc., for highway crossings on the Missouri River in the vicinity of Great Falls, Montana.

The Corps of Engineers has prepared a draft environmental statement for our proposed flood protection project at Great Falls. The current plan includes construction of a levee along the Sun River only; therefore, data for the Missouri River is not included in the environmental statement. Our design memorandum of July 1966 recommended a flood control plan which also included construction of levees along the Missouri River. The design memorandum contains no information on water quality or fish and wildlife resources but does present information on the hydrology and hydraulics of the Sun River and the Missouri River. The design memorandum also contains geologic information. Because of the large number of pages in the design memorandum, it would require a significant amount of time and paper to reproduce; therefore, I have included a copy of the table of contents of the design memorandum for your review. Copies of sections of the report can be made at your request. There would be a charge equivalent to the cost of labor and reproduction, usually about ten cents per page.

For additional information, we suggest that you contact the U.S. Geological Survey for records of surface water quality, the Environmental Protection Agency with regard to their water quality data base, "STORET", the Montana Department of Fish and Game, and the Montana Department of Natural Resources.

Sincerely yours,

John E. Velehradsky
 JOHN E. VELEHRADSKY, P.E.
 Chief, Planning Division

Incl
 as stated

AIR QUALITY BUREAU
Cogswell Building
(406) 449-3454

March 2, 1979

Mr. Richard Jacobson
HMA Associates
P.O. Box 31318
Billings, MT 59107

Dear Mr. Jacobson:

I'm sorry for the delay in sending you information which you requested from Mr. Harry Keltz on January 15, 1979. I include in Exhibit 1 a copy of the federal national ambient air quality standards and Exhibit 2 a copy of proposed Montana ambient air standards.

I shall summarize briefly the air quality for the city of Great Falls keeping in mind your need for an air quality evaluation of the proposed Great Falls south arterial.

In the past air measurements have been made in Great Falls for total suspended particulates (TSP), carbon monoxide (CO), sulfur dioxide (SO₂) and some particle size and chemical elements.

The city map in Exhibit 3 shows present and discontinued sampling sites:

Site	Parameters measured	Duration
1 Fire Station	TSP	Long-term
2 Hospital	TSP, SO ₂	Long-term
3 10th Ave. So.	CO, TSP	Since 1977
4 W. Kiwanis Pk.	TSP, particle size, SO ₂	New
5 Philip's Refinery	SO ₂	Only 1974

In addition to the above, the City-County agency has done considerable static sulfur oxide monitoring and some dustfall measurement.

In Exhibit 4 TSP data is presented for sites 1, 2 and 3. Based on higher readings obtained at site 1 (Fire Station), the downtown area has not always achieved the federal secondary standard for total suspended particulates. The downtown area is thus designated non-attainment for TSP as shown in Exhibit 5. These higher concentrations are partially due to slower moving traffic in the congested downtown areas. Looking at the Exhibit 4 plots of monthly data, there are no consistent trends which might correlate with spring thawing and reentrainment of winter sanding material or with dry summer-fall dust conditions.

EEO/AFFIRMATIVE ACTION AGENCY

Mr. Richard Jacobson
Page 2
March 2, 1979

Exhibit 6 plot of TSP data for site 1 (Fire Station) shows 1975-1978 data. Year-to-year variability is shown. You'll find that such variability does not correlate well with monthly precipitation values. Particulate values in downtown Great Falls show some general downward trend in the last three years although this may just be random variation.

In the south Great Falls area, some TSP increase is seen and probably correlates with southside development and with capacity traffic on 10th Avenue South.

Carbon monoxide is emitted in Great Falls by motor vehicles. Exhibit 7 shows for site #3 on 10th Avenue South actual 8:00 a.m. vehicle counts for one year. The data was averaged monthly--May data is dashed in because less than 50 percent of the data was available for the month. It is shown that on weekdays traffic is the greatest (Friday sustains the greatest traffic) while weekends show the fewest vehicles.

With a continuously operating carbon monoxide instrument at site #3, we tried to determine for Great Falls how closely vehicle counts correlated with carbon monoxide concentrations. Exhibit 8 shows daily correlations for TSP, CO and traffic counts. For the limited data studied some correlation is shown between traffic and CO on a daily basis.

On an hourly basis, as shown in Exhibit 9, CO does correlate to traffic in Great Falls. The amount of correlation depends greatly on meteorological conditions. Again, it should be understood that the source of carbon monoxide in Great Falls is the motor vehicle.

Exhibit 10 shows hourly comparisons of CO to traffic counts for the month of February 1978. From this monthly plot, late morning to afternoon wind conditions in Great Falls seem to mix and dilute CO concentrations such that less CO concentration is measured than would be expected.

For the 12 months ending June, 1978, the federal 8-hour standard for carbon monoxide was violated 14 times. So the 10th Avenue South area in Great Falls is not complying with the federal carbon monoxide standard. Windy conditions in Great Falls probably lower CO build-ups. In Missoula fewer vehicles per day (than measured in Great Falls) cause higher CO concentrations than have been measured.

Ozone, nitrogen dioxide and hydrocarbons have not been measured in Great Falls. It is probable that hydrocarbon concentrations would be moderately high on the north side of town. Ozone and nitrogen dioxide concentrations should be low. Violation of sulfur dioxide standards probably occurs again on the north side of town, again because of the refinery.

The proposed south arterial will decrease the 10th Avenue South and possibly the downtown traffic situations. These traffic reductions should decrease the TSP and CO concentrations in Great Falls. The State Highway

Mr. Richard Jacobson
Page 3
March 2, 1979

Department projects a traffic count of 8000 per day in 1980 along the arterial. The south arterial traffic would remove 8000 vehicles per day from 10th Avenue South. If one refers to Exhibit 8, it can be seen that some 20,000 to 22,000 vehicles per day would still travel 10th Avenue South. Under poor ventilation conditions, CO standards would probably still be violated.

Considering the south arterial itself with its limited access and higher average vehicle speed, it is not probable that any pollutant concentrations would exceed state or federal ambient air quality standards.

In summary, total suspended particulate and carbon monoxide standards are violated in Great Falls, carbon monoxide more seriously than total suspended particulates. Great Falls wind conditions generally moderate pollutant build-ups otherwise violations would be more numerous. The proposed south arterial will decrease 10th Avenue South and possibly downtown traffic congestion. But violations of the federal ambient air standard for carbon monoxide will probably continue to occur. You may note that the newly proposed state carbon monoxide standard for 1-hour is 50 percent lower than the federal 1-hour standard; this may result in future control problems.

Sincerely,



David Haughan, Supervisor
Air Monitoring

DM:ms

Enc.

CITY-COUNTY HEALTH DEPARTMENT

1130 17TH AVE. SOUTH
GREAT FALLS, MONTANA 59403

761-6312

BOARD OF HEALTH
COUNTY COMMISSIONER
MAYOR
MEMBER OF THE CITY OF GREAT FALLS
REPRESENTATIVE MEDICAL SOCIETY
REPRESENTATIVE DENTAL SOCIETY

March 9, 1979

CASCADE COUNTY AIR POLLUTION CONTROL PROGRAM

Richard Jacobson, P.E.
HKM Associates
Box 31318, Executive Plaza
Airport Industrial Park
Billings, Montana 59107

Dear Mr. Jacobson:

This letter is in response to your letter requesting information from this Department concerning the air quality in and around Great Falls for your environmental assessment for the south arterial.

As you can tell from the enclosed map the Cascade County Air Pollution Control Program has done considerable sampling in Great Falls and in the surrounding communities.

You stated that you need information from along 10th Avenue South and in the area south of 10th Avenue South. We have conducted samples for sulfation using the Huey sulfation plate, dustfall using the gravimetric method, total suspended particulate using the high volume sampler and carbon monoxide using a non direct infrared analyzer. The data for the area south of Great Falls has a history of very low readings for sulfation for dustfall. All of the readings are well below the Montana Ambient Air Quality Standards and have never approached the standards. The Hi Vol Sampler located south of 10th Avenue South is located at the Cascade County Health Department, 1130 17th Avenue South. The 1978 annual average for total suspended particulate at this station was 54.66 ug per cubic meter, measured in a total of 45 samples over the calendar year 1978. The dustfall readings at the same station have an average of 5.75 tons per square mile per month for the 12 months of 1978. The sulfation readings showed only a trace amount, less than .01 mg of sulphate per 100 square centimeters per day. These were the samples for the station that was farthest south of Great Falls and would probably supply the best background data for the area that you are concerned with. Carbon monoxide is measured by the monitor located near the corner of 9th Street and 10th Avenue South. The data from this monitor showed an arithmetic average for 1978 of approximately 2.5 parts per million of carbon monoxide over each 24 hour period. This station has reflected a number of periods where the 8 hour average is over 9 parts per million, most of these occurred in the winter months of January, February and March.

Richard Jacobson, P.E.
March 9, 1979
Page 2

This is a brief review of the data which the Cascade County Air Pollution Control Program has for the air quality in and around Great Falls.

We hope this is of assistance to you in preparing your study. If you have any questions, please do not hesitate in contacting this office.

Sincerely,

CITY-COUNTY BOARD OF HEALTH

By *Michael W. Ardon*
Michael W. Ardon, R.S.
Cascade County Air Pollution
Control Program

MWA/kl

Enc:

P.O. box 3318, executive plaza,
billings, montana
59107
pink

Darrell J. Furan
City-County Health Dept.
1130 17th Avenue South
Great Falls, Montana 59405

Thank you for the information on the Great Falls South Area. We are trying to obtain water quality information for this area and would like to obtain copies of any chemical analysis you may have on wells in the area, if possible.

HKM ASSOCIATES--

WH:bct



STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

RECEIVED

MAR 23 1979
MONTANA DEPARTMENT
OF HIGHWAYS

March 22, 1979

M 5212 (1)
Great Falls
South Arterial

HQM Associates
P. O. Box 31318
Billings, Montana 59107

Compliments:

This letter will serve as notification of the intent of the Montana Department of Highways to conduct a location study for the proposed Great Falls South Arterial. HQM Associates, engineering consultants located in Billings, Montana, will be conducting this location study for the Department.

The South Arterial is included in the Long Range Element of the Great Falls Transportation Plan dated June, 1977. This project is being planned to help relieve traffic congestion on 10th Avenue South and to provide a major east-west arterial to serve the developing areas South of 10th Avenue South. Traffic volumes on portions of the South Arterial are projected to be approximately 17,800 vehicles per day by the year 2000. If this facility is not built, the majority of this traffic would be assigned to 10th Avenue South resulting in year 2000 traffic volumes on portions of 10th Avenue South of approximately 43,800 vehicles per day.

The South Arterial is being planned as a four lane facility with access limited to major street connections. The project will include a four lane structure crossing the Missouri River. It is expected that the project will be built in stages, with the stages to be determined as the project develops. Since the project could have significant environmental impacts, an environmental impact statement will be prepared as part of this location study. The alternatives being proposed for further study are shown on the enclosed aerial photo print.

A public information meeting is scheduled for 7:30 p.m., April 5, 1979, at Sunnyside Elementary School, 1800 19th Street South, Great Falls, Montana. The proposed alternatives will be presented and comments will be received from interested citizens and agencies. At this meeting we would also like to reach agreement as to the scope and the impacts to be addressed in detail in the environmental impact statement.

Your attendance at this meeting and comments concerning these matters will be helpful for the development and coordination of this project. Any other comments or information you may have which may affect this project will also be appreciated.

The following list indicates those agencies to which this letter is being sent. If you are aware of any other agencies or groups that might be affected or concerned and are not on the list, please let us know and we will contact them.

Environmental Protection Agency Deputy Regional Administrator, Region VIII Suite 900, 1960 Lincoln Street Denver, Colorado 80203	Center for Balanced Transportation P. O. Box 931 Bozeman, Montana 59715
Federal Housing Administration Housing and Urban Development Office of the Director Federal Office Building 301 South Park Avenue, Drawer 10095 Montana Automobile Association P. O. Box 4129 Helena, Montana 59601	Department of Anthropology University of Montana Missoula, Montana 59801 Montana State University Department of Anthropology Attn: Dr. Del Samson Bozeman, Montana 59715 Mr. Richard P. Graetz P. O. Box 894 Helena, Montana 59601
Montana Stockgrowers Association Office of the Secretary P. O. Box 1679 First National Bank Building Helena, Montana 59601	Sierra Club Upper Missouri Group c/o Mr. Jack Schmidt P. O. Box 515 Helena, Montana 59601
Montana Historical Society State Historic Preservation Officer Veteran's Memorial Building 225 North Roberts Street Helena, Montana 59601	The Wilderness Society 4260 East Evans Avenue Denver, Colorado 80222
Burlington Northern Railroad, Inc. Rocky Mountain District Donald M. Nettleton, Director Timber and Land Management 700 South Avenue West Missoula, Montana 59801	Montana Wildlife Federation P. O. Box 4373 Missoula, Montana 59806 Department of the Army Omaha District Corps of Engineers 7410 U.S. Post Office and Courthouse Omaha, Nebraska 68102

U.S. Department of Transportation
United States Coast Guard
Commander (DM)
Thirteenth Coast Guard District
915 Second Avenue
Seattle, Washington 98174

U.S. Department of Transportation
Federal Aviation Administration
Rocky Mountain Region, A.R.M. 615
10455 East 25th Avenue
Aurora, Colorado 80010

U.S. Department of the Interior
Bureau of Land Management
Montana State Office
P.O. Box 30157
Billings, Montana 59107

U.S. Department of the Interior
U.S. Geological Survey, MS-104
Chief, Environmental Impact
Assessment Program
Reston, Virginia 22092

U.S. Department of the Interior
Bureau of Mines
Chief, Western Field Operation Center
East 315 Montgomery
Spokane, Washington 99207

U.S. Department of the Interior
U.S. Geological Survey, WRD
Federal Building, Room 428, Drawer 10076
301 South Park Avenue
Helena, Montana 59601

U.S. Fish and Wildlife Services
Attn: Area Manager
Federal Building, Room 3035
316 North 26th Street
Billings, Montana 59101

U.S. Department of the Interior
Bureau of Reclamation
Regional Director, Region U M
P.O. Box 2553, Federal Office Building
Billings, Montana 59103

U.S. Department of the Interior
Heritage Conservation & Recreation Service
Regional Director, Mid-Continent Region
P.O. Box 25387, Building 41
Denver Federal Center
Denver, Colorado 80225

U.S. Department of the Interior
National Park Service
Regional Director, Rocky Mountain Reg.
P.O. Box 25287, 655 Parfet Avenue
Denver, Colorado 80215

U.S. Department of the Interior
Missouri River Basin
Special Asst. to the Secretary
Room 688, Building 67
Denver Federal Center
Denver, Colorado 80225

U.S. Department of the Interior
Bonneville Power Administration
Environmental Coordinator
P.O. Box 3621
Portland, Oregon 97208

U.S. Department of Transportation
Federal Highway Administration
301 South Park Avenue
Drawer 10056
Helena, Montana

Department of Fish & Game
Assistant Administrator
Environment and Information Div.
1420 East Sixth Avenue
Helena, Montana 59601

Department of Natural Resources
and Conservation
Office of the Director
32 South Ewing
Helena, Montana 59601

Department of State Lands
Office of the Commissioner
1625 11th Avenue
Helena, Montana 59601

Department of Natural Resources
and Conservation
Attn: Administrator
Conservation District Division
32 South Ewing
Helena, Montana 59601

Environmental Quality Council
Office of the Director
P.O. Box 215
Capitol Post Office
Helena, Montana 59601

Department of Community Affairs
Aeronautics Division
P.O. Box 5178
Helena, Montana 59601

Department of Fish and Game
Administrator, Recreation and Parks Div.
1420 East Sixth Avenue
Helena, Montana 59601

Department of Health and Environmental
Sciences
Air Quality Bureau
Attn: Mr. Robert Ralsch
Cogswell Building
Helena, Montana 59601

Department of Health and Environmental
Sciences
Mosquito Abatement Advisory Council
Attn: Dr. Kenneth L. Quickenden
Board of Health Building
Helena, Montana 59601

School District (1)
District Chairperson
Howard A. Carg
P. U. Box 2428
Great Falls, Montana 59403

Cascade County Extension Agent
Attn: Joseph W. Morris, Chairman
P. O. Box 6790
Great Falls, Montana 59406

Cascade Conservation District
4930 9th Avenue South
Great Falls, Montana 59405

Great Falls City-County Planning Board
Attn: John R. Richards, Director
Civic Center
P. O. Box 1609
Great Falls, Montana 59403

39-SCX/GL/jjs

cc J. R. Beckert
R. E. Champion
R. W. Freeman
S. C. Kologi
D. P. Bartsch
G. L. Larson

Great Falls Gas Company
P. O. Box 2229
Great Falls, Montana 59401

Cascade County Planning Board
Attn: Jim Yeagley, Director
County Courthouse
Great Falls, Montana 59401

Cascade Electric
903 10th Avenue North
Great Falls, Montana 59401

Montana Power Company
40 East Broadway
Butte, Montana 59701

Cascade Board of County Commissioners
Cascade County Courthouse
Great Falls, Montana 59401

Great Falls Chamber of Commerce
P. O. Box 2127
Great Falls, Montana 59403

Mountain States Telephone
Attn: F. R. Ketrone, Staff Supervisor
P. O. Box 1716
Helena, Montana 59601

United States Postmaster
Great Falls,
Montana 59403

The Honorable John C. Buley
Mayor of Great Falls
Great Falls, Montana 59401

HKM Associates
P. O. Box 31318
Billings, Montana 59107

Yellowstone Pipeline Co.
Box 185, Parkwater Station
Spokane, Washington 99211

Very truly yours,

Stephen C. Kologi
Stephen C. Kologi, P. E., Chief
Preconstruction Bureau



HISTORIC PRESERVATION OFFICE

225 NORTH FRONT ST. S. STREET • (406) 449-4584 • HELENA, MONTANA 59601

April 24, 1979

Stephen Kolozi, Chief
Preconstruction Bureau
Department of Highways
Helena, MT 59601

RE: M 5212(1), So. Arterial,
Great Falls

Dear Mr. Kologit:

The above project will have an effect on the Great Falls Portage, a National Historic Landmark site. The Great Falls Portage is the route which Lewis & Clark took to get around the Great Falls of the Missouri.

The Landmark site's integrity consists of preserving the natural setting and landscape. Enclosed is a copy of the route.

Sincerely,

Ken North
State Historic Preservation
KK:pb

Date Recd. Precost	Info	<div> <div>20</div> <div>50</div> <div>100</div> <div>150</div> <div>200</div> <div>250</div> <div>300</div> <div>350</div> <div>400</div> <div>450</div> <div>500</div> <div>550</div> <div>600</div> <div>650</div> <div>700</div> <div>750</div> <div>800</div> <div>850</div> <div>900</div> <div>950</div> <div>1000</div> </div>	<div> <div>10/1/21</div> <div>10/1/22</div> <div>10/1/23</div> <div>10/1/24</div> <div>10/1/25</div> <div>10/1/26</div> <div>10/1/27</div> <div>10/1/28</div> <div>10/1/29</div> <div>10/1/30</div> <div>10/1/31</div> <div>10/1/32</div> <div>10/1/33</div> <div>10/1/34</div> <div>10/1/35</div> <div>10/1/36</div> <div>10/1/37</div> <div>10/1/38</div> <div>10/1/39</div> <div>10/1/40</div> </div>
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DEPARTMENT OF THE ARMY
OMAHA DISTRICT CORPS OF ENGINEERS
1015 P STREET, SUITE 100
OMAHA, NEBRASKA 68102

RECEIVED
MONTANA DEPT. OF HIGHWAYS
APR 16 1979

Mr. Stephen C. Kologi, P.E.
Chief, Preconstruction Bureau
Department of Highways
State of Montana
Helena, MT 59601

Dear Mr. Kologi:

This is in response to your letter of 22 March 1979 informing us of your intent to conduct a location study and prepare an Environmental Impact Statement for the proposed Great Falls South Arterial. We note that the proposed project will include a four-lane structure crossing the Missouri River. Any "filling" activity, including cast-in-place concrete, within the Missouri River or adjacent wetlands in connection with the proposed project will require a Department of the Army permit pursuant to Section 404 of the Federal Water Pollution Control Act, as amended.

We did a flood plain information study and a flood insurance study for Great Falls which included an evaluation of the Missouri River flood characteristics. We can provide back-up information or other assistance, if needed, to evaluate the effects of the proposed bridge on flood conditions.

Please contact us if we can be of any assistance.

Sincerely yours,

John E. Velerauskis
JOHN E. VELERAUSKY, P.E.
Chief, Planning Division

Date Recd. Preconst.	Initial	Attach
MAIL ROUTE		
Info		
Act		



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMUNICATIONS SECTION
315 SECOND AVE.
SEATTLE, WASH. 98101
PHONE 206 442-7523

RECEIVED
MONTANA DEPT. OF HIGHWAYS
APR 18 1979

Mr. Stephen C. Kologi, P. E.
Chief, Preconstruction Bureau
State of Montana
Department of Highways
Helena, MT 59601

Dear Mr. Kologi:

We have reviewed your transmittal of 22 March 1979, addressing your proposed Great Falls South Arterial project, M 5212 (1). In view of the location no Coast Guard Bridge Permit will be required for this project.

Sincerely,

Richard P. Malm
RICHARD P. MALM
Captain, U.S. Coast Guard
Chief of Staff
13th Coast Guard District

Date Recd. Preconst.	Initial	Attach
MAIL ROUTE		
Info		
Act		

DATE	TIME	INITIALS	REMARKS
APR 18 1979	10:00 AM		RECEIVED
APR 19 1979	10:00 AM		RECEIVED
APR 20 1979	10:00 AM		RECEIVED
APR 21 1979	10:00 AM		RECEIVED
APR 22 1979	10:00 AM		RECEIVED
APR 23 1979	10:00 AM		RECEIVED
APR 24 1979	10:00 AM		RECEIVED
APR 25 1979	10:00 AM		RECEIVED
APR 26 1979	10:00 AM		RECEIVED
APR 27 1979	10:00 AM		RECEIVED
APR 28 1979	10:00 AM		RECEIVED
APR 29 1979	10:00 AM		RECEIVED
APR 30 1979	10:00 AM		RECEIVED



MAILING ADDRESS:
Post Office Box 25387
Denver Federal Center
Denver, Colorado 80225

RECEIVED

APR 25 1979

cc: Montana SHPO
Mr. Brit Storey

This is in response to your March 22, 1979, notice for Project W 3212(1), Great Falls South Arterial, in Cascade County, Montana. The following comments are provided on a technical easement basis only and do not constitute comments on an environmental statement.

Either of the two proposed alternates would twice cross the Great Falls Portage National Historic Landmark. The National Register of Historic Places Inventory-Nomination Form for this landmark states that "Since no permanent man-made evidence remains of the Lewis and Clark expedition's campaigns and exploration of the Great Falls area, the integrity of the historic sites is dependent on the preservation of the natural scene as it was when the explorers camped there and described it." Since construction of the arterial across the landmark would appear to effect this "natural scene" and, in turn, the integrity of the landmark, we recommend that you initiate consultation with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation pursuant to 36 CFR 600. The SHPO can also provide a detailed map of the landmark boundaries.

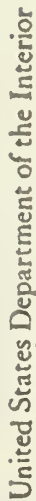
It also appears that Section 4(f) of the Department of Transportation Act, as amended, would apply to this project. Although it may be difficult to find an arterial route which avoids use of land from the Landmark, we recommend that the environmental statement analyze all alternatives which might avoid or minimize impacts to the Landmark. In particular, alignments to the north of the Landmark (upgrading of 10th Avenue South) and to the south around the Landmark should be evaluated. In addition, the environmental statement should discuss the secondary urban development impacts which would result from the construction of a major arterial through presently undeveloped areas.

Sincerely,

Robert H. Albino

Robert J. Arkins
Assistant Regional Director
Land Use Coordination

[illegible]



LOUISIANA DEPT. OF HIGHWAYS
BAYLOR PARK SERVICE

W
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V
2

ON 010574 A167000

MAY - 7 1979

1709 JACKSON STREET

100

720 KM

new.

Mr. Stephen C. Kologi
Chief, Preconstruction Bureau
Montana Department of Highways
Helena, Montana 59601

Dear Mr. Koebel:

We received a copy of your letter requesting comments on the proposed Great Falls South Arterial from the Rocky Mountain Region, National Park Service. You have already received comments from Rocky Mountain Associate Regional Director Richard A. Stralt in a letter dated April 10, 1979. As Mr. Stralt's letter indicated, we have responsibility for the Lewis and Clark National Historic Trail which the South Arterial crosses. We would like to provide these additional comments for consideration in your planning.

We are just beginning a comprehensive plan for the newly designated Lewis and Clark Trail. Completion of the plan is scheduled for September, 1981. In the plan, we will identify significant segments of the route of the Lewis and Clark Expedition and will propose a method for the preservation and public use of each segment. We believe most authorities would agree that the segment crossed by the South Arterial is a significant route segment. The Expedition traversed this segment several times in June and July, 1805, during its portage around the Great Falls of the Missouri River.

We recognize the difficulties in attempting to establish a trail along the portage route in the urbanized area of Great Falls. However, during our planning, we hope to work with state, local, and private interests, including your agency, to determine the best method of commemorating this segment.

Public Law 95-625, which designated the Lewis and Clark National Historic Trail, also charges us with developing a uniform sign and marking plan for the Trail. The sign and marking plan will be developed as part of the comprehensive plan. At present, it is our intention to mark the Trail at strategic points, including major road crossings. Erection and maintenance of Lewis and Clark Trail markers should be considered in your planning.

Enclosed is a map of the approximate route of the portage trail in the area of the South Arterial. The map uses a portion of your map, Project N-5212(1), Great Falls South Arterial, as a base for easy reference. If you require additional information concerning the Lewis and Clark Trail or the progress of the comprehensive plan, you may contact Mr. Bill Farrand at 402-221-3482.

Sincerely, yours,

J. L. Dunning
Regional Director

Enclosure

Date Recd. Precast. 5/3/77	Initial								
	Attach								
	MAIL ROUTE								
	Info								
	Act								



Department of Health and Environmental Sciences
STATE OF MONTANA - HEALING MONTANA 2000

May 15, 1979

A. C. Knight, M.D., F.C.C.P.
Director

Mr. Norman K. Gutscher, P.E.
HNH Associates
P. O. Box 31318
Billings, Montana 59107

Dear Mr. Gutscher:

Re: Great Falls South Arterial
Arterial MS212(1)

In reply to your May 2, 1979 submittal on the above reference project, a Section 6(g) Authorization (allows for a temporary increase in turbidity above that permitted by Montana's Water Quality Standards to facilitate construction) and a wastewater discharge permit (for dewatering operations) probably will be necessary at the Missouri River crossing.

Sincerely yours,

Robert D. Braico

Robert D. Braico, P.E.
Water Quality Bureau
Environmental Sciences Division

RDB:mg

cc: Stephen C. Kologri, P.E., Chief, Preconstruction Bureau,
Department of Highways, Helena
Mike Pasichnyk

EEO/AFFIRMATIVE ACTION AGENCY

GREAT FALLS CITY-COUNTY PLANNING BOARD
SERVING THE COUNTY OF CASCADE AND THE CITY OF GREAT FALLS, MONTANA

June 7, 1979

Mr. Norman Gutscher, P.E.
HNH Associates
Airport Industrial Park
Box 31318
Billings, Montana 59107
Attn: Dick Jacobson

Dear Mr. Gutscher:

Please reference the "Proposed Surface Drainage System Design Criterion" report presented at the June 6, 1979, South Arterial Steering Committee meeting.

In discussing the proposed design criteria with Stu Pearson, City Engineer, he indicated that the City of Great Falls concurs with the selected criterion.

Per your request, we have enclosed a copy of the Tenth Avenue South Safety Study.

Sincerely,

John Mooney
John Mooney
Director

JM/BNR/d

Encl: Report

CIVIC CENTER GREAT FALLS, MONTANA P.O. BOX 1609, 59403 (406) 727-5881

GF

GREAT FALLS PUBLIC SCHOOLS

ADMINISTRATION
Harold Wenaas, Ed. D. Superintendent
James O. Benedict, Asst. Supt. Transportation
John U. Rankin, Asst. Supt. Transportation
Earl W. Lind, Asst. Supt. School
Donald W. Edwards, Asst. Supt. School
JERRY C. HATCH, Asst. Supt. School

BOARD OF TRUSTEES
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HARRY DAVISON
Paul L. Lathrop, O.D.
Owen Robinson
Alfred W. Thurston

JUN 20 1979
JUN 20 1979
JUN 20 1979

June 20, 1979

Norman K. Gutcher, P. E.
Director, Transportation Division
HKN Associates
P. O. Box 31318
Billings, Montana 59107

Dear Mr. Gutcher:

In reference to your letter and map sent to us on June 18, concerning two School District sites located in the Grande Vista area of Great Falls, you asked what our present and future plans are for these two tracts of land.

It is the present and future plan for the long vertical site next to the railroad track to be sold. I do not believe that it will ever be used for school purposes. However, as to the 10.2 acres of land located on the south end of Ferguson Drive, it is projected that someday this will be an elementary or junior high school site. The district does not intend to sell this site, and it will be held for possible enrollment growth in the area.

I would not like to see an arterial going through this site, as I believe this might cause some safety problems to the elementary students attending a future building in that area. At the moment I am not too concerned as to whether or not an arterial would cross the long vertical strip of land which is located between the railroad track and Flood road.

I hope this information will assist you in some way.

Sincerely,

Harold Wenaas
Harold Wenaas, Ed.D.
Superintendent

HW:vs

1100 FOURTH STREET SOUTH - P. O. BOX 1448 - GREAT FALLS, MONTANA 59408 - (408) 791-8300
AN EQUAL OPPORTUNITY EMPLOYER



RECEIVED

JUN 26 1979

59403

CITY OF GREAT FALLS

P. O. BOX 1609

TELEPHONE 406

PARK & RECREATION DEPARTMENT 727-5881

June 22, 1979

Mr. Norman K. Gutcher
Director Transportation Division
P. O. Box 31318
Billings, MT 59107

Dear Mr. Gutcher:

In response to your letter dated June 18, 1979, concerning the City of Great Falls intention of use for Lot 6, Section 23, Township 20 North, Range 3 East now being leased by the City of Great Falls.

We intend to extend the lease with the state and still plan to develop the acreage for River front Park Land. We also have intentions of developing Taylor Island.

We strongly oppose any disruption of Park Land for the purpose of constructing highways, bridges and like.

Our opposition to the Federal Government or the State of Montana on taking Park Land to develop right ways, arterials, bridges, etc. has been expressed before and is on file. The River front property and Island will undoubtedly make a tremendous Park area in future years; therefore, we strongly urge you to consider other alternatives that would not hinder future City of Great Falls Park development.

We also ask that you keep us informed of all considerations, public hearings in the future in regards to the previously mentioned tracts of land.

Sincerely yours,

Tom Sullivan

Tom Sullivan, Director
Department of Park & Recreation

TS/jaz

RECEIVED
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20591

U.S. Box 31318
Billings, Montana 59107
Airport Industrial Park

August 9, 1979
2M051.1021

(406) 243-6354 229-1993

Re: Great Falls South Arterial M5212 (1)

Gentlemen:

On March 22, 1979, the Montana Department of Highways, in cooperation with the Federal Highway Administration, issued a Letter of Intent to prepare an environmental impact statement on the above referenced project in Great Falls, Montana. HKM Associates is preparing this EIS for the Department.

Comments were solicited in the Letter of Intent and on April 5, 1979, a public information/scoping meeting was held in Great Falls. However, we have received very few comments to date.

A second public involvement meeting is scheduled for 7:30 p.m. on August 21, 1979, at Sunnyside Elementary School, 1800 19th Street South, Great Falls, Montana. As a result of the limited comments received to date, we are extending the "scoping process" to include this August 21 meeting.

The comments we have received to date are concerned with:

- All "new construction" alternates cross the path of the Lewis & Clark portage and the Missouri River.
- One alternative crosses a proposed city park.
- The displacement of existing residences versus the desirability of obtaining a right-of-way prior to additional development.
- The location of alternative routes relative to schools, agricultural land and proposed subdivisions.

The South Arterial concept was first recommended in the 1969 Great Falls Transportation Plan Update and is included in the Long Range Element of the Great Falls Transportation Plan dated June, 1977. The alternate South Arterial routes are shown on the attached map of Great Falls.

Additional alternatives are being considered in the draft EIS, including:

- No construction
- Establish a mass transit system
- Upgrade 10th Avenue South
- Provide one-way traffic along 10th Avenue South
- Place the west interchange at the base of hill (Flood Road/I-15)
- Cross the Missouri River near the bottom edge of the map.

Your attendance at the August 21 meeting or your prompt written comments will be appreciated. Written statements regarding the scope of issues related to the proposed action and requests for additional information should be directed to:

William Dunbar
U.S. Department of Transportation
Federal Highway Administration
Federal Office Building
301 South Park Avenue
Helena, Montana 59601

Sincerely,

HKM ASSOCIATES

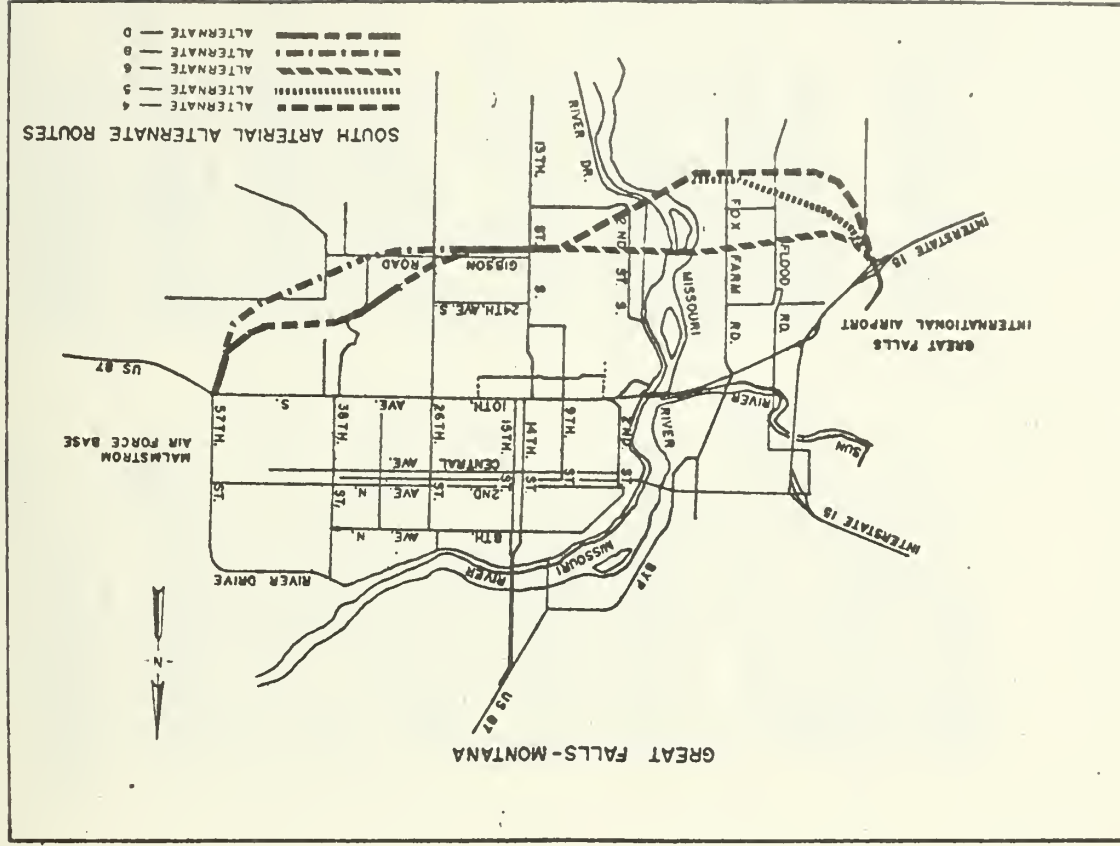
Norman K. Gutcher
Norman K. Gutcher, P.E.
Director, Transportation Division

cc: Gordon Larson, MOOH
William Dunbar, FHWA

Attached Distribution List

DISTRIBUTION LIST

Environmental Protection Agency Deputy Regional Administrator, Region VIII Suite 900, 1960 Lincoln Street Denver, Colorado 80203	Center for Balanced Transportation P.O. Box 931 Bozeman, Montana 59715
Federal Housing Administration Housing and Urban Development Office of the Director Federal Office Building 301 South Park Avenue, Drawer 10095 Helena, Montana 59601	Department of Anthropology University of Montana Missoula, Montana 59801
Montana Automobile Association P.O. Box 4129 Helena, Montana 59601	Montana State University Department of Anthropology Attn: Dr. Del Samson Bozeman, Montana 59715
Montana Stockgrowers Association Office of the Secretary P.O. Box 1679 First National Bank Building Helena, Montana 59601	Mr. Richard P. Graetz P.O. Box 894 Helena, Montana 59601
Montana Historical Society State Historic Preservation Officer Veteran's Memorial Building 225 North Roberts Street Helena, Montana 59601	Sierra Club Upper Missouri Group c/o Mr. Jack Schmidt P.O. Box 515 Helena, Montana 59601
Burlington Northern Railroad, Inc. Rocky Mountain District Donald H. Nettleton, Director Timber and Land Management 700 South Avenue West Missoula, Montana 59801	The Wilderness Society 4260 East Evans Avenue Denver, Colorado 80222
U.S. Department of Transportation United States Coast Guard Commander (OAN) Thirteenth Coast Guard District 915 Second Avenue Seattle, Washington 98174	Montana Wildlife Federation P.O. Box 4373 Missoula, Montana 59806
U.S. Department of Transportation Federal Aviation Administration Rocky Mountain Region, A.R.M. 615 10455 East 25th Avenue Aurora, Colorado 80010	Department of the Army Omaha District Corps of Engineers 7410 U.S. Post Office and Courthouse Omaha, Nebraska 68102
	U.S. Department of the Interior National Park Service Regional Director, Rocky Mountain Region P.O. Box 25287, 655 Parfet Avenue Denver, Colorado 80215
	U.S. Department of the Interior Missouri River Basin Special Asst. to the Secretary Room 688, Building 67 Denver Federal Center Denver, Colorado 80225



Department of Fish and Game
 Administrator, Recreation and
 Air Quality Bureau
 1420 East Sixth Avenue
 Helena, Montana 59601

Department of Health and Environ-
 mental Sciences
 Air Quality Bureau
 Attn: Mr. Robert Ralsch
 Cogswell Building
 Helena, Montana 59601

Department of Health and Environ-
 mental Sciences
 Mosquito Abatement Advisory
 Board
 Attn: Dr. Kenneth L. Quickenden
 Board of Health Building
 Helena, Montana 59601

School District (1)
 District Chairperson
 Howard A. Caare
 P.O. Box 2428
 Great Falls, Montana 59403

Cascade County Extension Agent
 Attn: Joseph W. Morris, Chairman
 P.O. Box 6790
 Great Falls, Montana 59406

Cascade Conservation District
 4930 9th Avenue South
 Great Falls, Montana 59405

Great Falls City-County Planning Bd.
 Attn: John R. Richards, Director
 Civic Center
 P.O. Box 1609
 Great Falls, Montana 59403

Cascade County Planning Board
 Attn: Jim Yeagley, Director
 County Courthouse
 Great Falls, Montana 59401

Cascade Electric
 903 10th Avenue North
 Great Falls, Montana 59401

Montana Power Company
 40 East Broadway
 Butte, Montana 59701

Cascade Board of Co. Commissioners
 Cascade County Courthouse
 Great Falls, Montana 59401

Great Falls Chamber of Commerce
 P.O. Box 2127
 Great Falls, Montana 59403

Mountain States Telephone
 Attn: F.R. Ketrone, Staff
 Supervisor
 P.O. Box 1716
 Helena, Montana 59601

United States Postmaster
 Great Falls,
 Montana 59403

The Honorable John C. Buley
 Mayor of Great Falls
 Great Falls, Montana 59401

HKM Associates
 P.O. Box 31318
 Billings, Montana 59107

Yellowstone Pipeline Co.
 Box 185, Parkwater Station
 Spokane, Washington 99211

U.S. Department of the Interior
 Bureau of Land Management
 Montana State Office
 P.O. Box 30157
 Billings, Montana 59107

U.S. Department of the Interior
 U.S. Geological Survey:MS-104
 Chief, Environmental Impact
 Assessment Program
 Reston, Virginia 22092

U.S. Department of the Interior
 Bureau of Mines
 Chief, Western Field Operation Center
 East 315 Montgomery
 Spokane, Washington 99207

U.S. Department of the Interior
 U.S. Geological Survey, WRD
 Federal Building, Room 428, Drawer
 10076
 301 South Park Avenue
 Helena, Montana 59601

U.S. Fish and Wildlife Services
 Attn: Area Manager
 Federal Building, Room 3035
 316 North 26th Street
 Billings, Montana 59101

U.S. Department of the Interior
 Bureau of Reclamation
 Regional Director, Region UM
 P.O. Box 2553, Federal Office Bldg.
 Billings, Montana 59103

U.S. Department of the Interior
 Heritage Conservation & Recreation
 Service
 Regional Director, Mid-Continent
 Region
 P.O. Box 25387, Building 41
 Denver Federal Center
 Denver, Colorado 80225

Department of Community Affairs
 Aeronautics Division
 P.O. Box 5178
 Helena, Montana 59601

U.S. Department of the Interior
 Bonneville Power Administration
 Environmental Coordinator
 P.O. Box 3621
 Portland, Oregon 97208

U.S. Department of Transportation
 Federal Highway Administration
 301 South Park Avenue
 Drawer 10056
 Helena, Montana 59601

Department of Fish & Game
 Assistant Administrator
 Environment and Information Div.
 1420 East Sixth Avenue
 Helena, Montana 59601

Department of Natural Resources
 and Conservation
 Office of the Director
 32 South Ewing
 Helena, Montana 59601

Department of State Lands
 Officer of the Commissioner
 1625 11th Avenue
 Helena, Montana 59601

Department of Natural Resources
 and Conservation
 Attn: Administrator
 Conservation District Division
 32 South Ewing
 Helena, Montana 59601

Environmental Quality Council
 Office of the Director
 P.O. Box 215
 Capitol Post Office
 Helena, Montana 59601

Great Falls Gas Company
 P.O. Box 2229
 Great Falls, Montana 59401



P.O. BOX 2127
926 CENTRAL AVENUE
GREAT FALLS, MONTANA 59403
(406) 761-4434

August 22, 1979

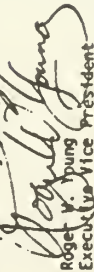
Mr. William Dunbar
U.S. Department of Transportation
Federal Highway Administration
Federal Office Building
301 South Park Avenue
Helena, MT 59601

This letter, Mr. Dunbar . . .

is written in regard to the project known as Great Falls South Arterial MS212 (1). The Great Falls Area Chamber of Commerce is very much in support of this project which we believe will have a beneficial effect upon relieving traffic congestion, particularly in the Fox Farm area and 10th Avenue South. As the community grows to the south, this will provide a much needed bypass route.

We look forward to the completion of this project.

Respectfully yours,


Roger W. Young
Executive Vice President

RWY/vg



DEPARTMENT OF THE ARMY
OMAHA DISTRICT CORPS OF ENGINEERS
6014 U.S. POST OFFICE AND COURTHOUSE
OMAHA, NEBRASKA 68102

MELOD-A

27 August 1979

Mr. William Dunbar
U. S. Department of Transportation
Federal Highway Administration
Federal Office Building
301 South Park Avenue
Bellevue, Montana 59601

Dear Mr. Dunbar:

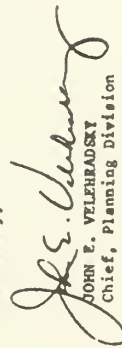
We are in receipt of your letter of 9 August 1979 in which you solicit comments on the Great Falls South Arterial MS212(1).

We are inclosing a "Special Note" which is customarily sent when a project may require a Sections 404 or 10 permit but which has, as yet, no specific information on design or location. The note is self-explanatory.

Further, before we can grant a Section 404 permit, an evaluation report must be prepared in accordance with the Section 404(b) guidelines promulgated by the Environmental Protection Agency (EPA). Observance of these guidelines, which appear in the Federal Register of 5 September 1975, in preparation of your environmental impact statement will facilitate and expedite our 404(b) evaluation report.

We appreciate the opportunity to comment on this project and suggest you contact this office should you have any questions.

Sincerely,


JOHN E. VELLEHEADSKY
Chief, Planning Division

Incl
As stated

SPECIAL NOTE

Our review notes that this proposed project may involve work in or adjacent to one or several streams or wetlands. Either under Section 10 of the River and Harbor Act of March 3, 1899 (30 Stat. 1151; 33 USC 403) or under the provisions of Section 404 of the Federal Water Pollution Control Act as amended, a permit may be required from the Corps of Engineers prior to the start of construction.

Neither our letter or review nor this special note is intended to convey or give Corps of Engineers approval to the document or the proposed projects therein you submitted for our review.

Additional project details and other information may be needed to make an environmental assessment and/or prepare or supplement an environmental impact statement in connection with the permit process. If you are not familiar with the permit regulations, additional information can be obtained from this office upon request.

Please write to: District Engineer
Omaha District, Corps of Engineers
ATTN: Operations Division
Post Office Box 5
Omaha, Nebraska 68101

205.5.102 I



MONTANA HISTORICAL SOCIETY

HISTORIC PRESERVATION OFFICE

225 NORTH ROBERTS STREET • (406) 449-4584 • HELENA, MONTANA 59601

September 4, 1979

Mr. Bill Dunbar
U.S. Dept. of Transportation, FHWA
301 S. Park
Helena, MT 59601

RE: Great Falls South
Arterial M5212 (1)

Dear Bill:

I understand that historical information is being prepared on the Great Falls Portage Route on the South Arterial, and an archaeological survey should be completed prior to final evaluation of impacts. I have no comment to make regarding alternatives as the impacts to cultural properties are not known at this time.

We will be happy to consult with you at a later date when more information is available.

Sincerely,

Edrie Vinson

Edrie Vinson, Program Manager
for
Ken Korte, State Historic Preservation Officer

EV/prb



DEPARTMENT OF TRANSPORTATION UNITED STATES COAST GUARD

MAILING ADDRESS (dpl)
ATTENTION: Captain Edward K. ROE
SEATTLE AREA
PHONE: 206 442-7523

16452
DPL79-894
17 SEP 80

Mr. William Dunbar
U. S. Department of Transportation
Federal Highway Administration
Federal Office Building
301 South Park Avenue
Helena, Montana 59601

Dear Mr. Dunbar:

We have reviewed the 9 August 1979 material, relating to the Great Falls South Arterial M5212(1), that was distributed by the HKM Associates.

The Missouri River is considered a navigable waterway at the location of the proposed arterial. The Coast Guard will not require a bridge permit for a bridge at this location; however, possible impacts of a bridge on marine traffic will need to be evaluated.

The material enclosed does not provide sufficient information for an evaluation of the impact of this project on the Coast Guard Marine Safety Programs on the Missouri River. Although the potential impacts on marine traffic may be very limited, the Environmental Statement must address any restriction on the movement of maritime commerce that will be imposed by this project, through height limitations or other restrictions.

Thank you for the opportunity to review this proposed action. Please contact Commander Edward K. ROE, at the following address or telephone number should you require additional information:

Commander (mps)
Thirteenth Coast Guard District
915 Second Avenue
Seattle, Washington 98174
(206) 442-5537

Sincerely,

Richard F. Malm

RICHARD F. MALM
Captain, U.S. Coast Guard
Chief of Staff
13th Coast Guard District



Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

AIR QUALITY BUREAU
Cogswell Building
449-3454

RECEIVED
OCT 01 1979

A. C. KNOX M.O.F.C.C.P.
Director

BROWN & CALDWELL
SEATTLE

September 28, 1979

Susan A. Guttormsen
Brown and Caldwell
100 W. Harrison St.
Seattle, WA 98119

Dear Ms. Guttormsen:

I have received your letter requesting an air quality assessment for the proposed Great Falls South Arterial.

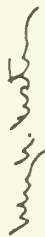
Since there are several alternatives still under consideration, it is difficult to make a precise determination of any possible air quality impacts. However, it does appear that no significant decrease in the ambient air quality will occur, but rather the project will serve to alleviate the air quality problems that presently exist in the Great Falls area.

The criteria used to determine air quality impacts are such factors as average vehicle speed, traffic volumes, length of road, access points, and intersections. Also, secondary factors such as length of time to complete construction, phasing of construction, method of construction (i.e. close one lane of traffic), and traffic control techniques should also be considered in the assessment.

The consideration of the aforementioned factors will greatly assist the Air Quality Bureau in reviewing the draft impact statement you are presently preparing.

I hope this information will prove useful to you, and if I may be of any further assistance, please do not hesitate to contact me.

Sincerely,


Henry W. Custin
Environmental Planner

HMC:pd

EEO/AFFIRMATIVE ACTION AGENCY



MONTANA HISTORICAL SOCIETY

225 NORTH ROBERTS STREET • (406) 449-4584 • HELENA, MONTANA 59601

September 29, 1980

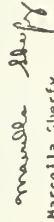
Stephen C. Kologi, P.E., Chief
Preconstruction Bureau
Department of Highways
Capitol Station
Helena, MT 59601

Re: MS212 (1)
Great Falls South Arterial

Dear Mr. Kologi:

Thank you for again checking with us on the project identified above. Given our concurrence in your 4 (f) Statement and final signing of a Memorandum of Agreement in accord with 36 CFR 800, you have complied with historic preservation requirements to date and will have finished compliance when the mitigation measures outlined in Mr. Stewart's February 19, 1980, letter are completed.

Sincerely,


Marcelle Silverfy
Deputy SHPO

MS/det

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BROWN AND CALDWELL

CONSULTING ENGINEERS

100 W. HARRISON STREET SEATTLE, WA 98119 (206) 281-4000
ATLANTA PASADENA EUGENE SEATTLE
ENVIRONMENTAL SCIENCE AND ENGINEERING

October 5, 1979

U.S. Fish and Wildlife Service
Attention: Area Manager
Federal Building, Room 3035
316 North 26th Street
Billings, Montana 59101

Gentlemen:

The Montana Department of Highways is assessing the various impacts associated with a proposed southern bypass around Great Falls, Montana. The enclosed map and project summary explain the alternatives being considered.

Brown and Caldwell is preparing the natural resources section of an environmental impact statement on this arterial and therefore is assessing the effects the proposed project will have on resident and migratory wildlife. We have compiled the enclosed list from a literature search and site reconnaissance. If your organization has identified any species not on the list or if you feel any animal listed is of special concern, we would appreciate your comments as soon as possible so they can be incorporated into the nearly-completed draft document.

Very truly yours,

BROWN AND CALDWELL

Emily M. Davies

Emily M. Davies

EMD:jrp
Enclosures (2)

014-460-2



BROWN AND CALDWELL

CONSULTING ENGINEERS

October 5, 1979

Department of Fish and Game
Assistant Administrator
Environment and Information Division
1420 East Sixth Avenue
Helena, Montana 59601

Gentlemen:

The Montana Department of Highways is assessing the various impacts associated with a proposed southern bypass around Great Falls, Montana. The enclosed map and project summary explain the alternatives being considered.

Brown and Caldwell is preparing the natural resources section of an environmental impact statement on this arterial and therefore is assessing the effects the proposed project will have on resident and migratory wildlife. We have compiled the enclosed list from a literature search and site reconnaissance. If your organization has identified any species not on the list or if you feel any animal listed is of special concern, we would appreciate your comments as soon as possible so they can be incorporated into the nearly-completed draft document.

Very truly yours,

BROWN AND CALDWELL

Emily M. Davies

Emily M. Davies

EMD:jrp
Enclosures (2)

014-460-2

BROWN AND CALDWELL
ENVIRONMENTAL SCIENCE AND ENGINEERING
100 W. HARRISON STREET SEATTLE, WA 98119 (206) 281-4000
ATLANTA PASADENA EUGENE SEATTLE
ENVIRONMENTAL SCIENCE AND ENGINEERING

BROWN AND CALDWELL
100 W. HARRISON STREET SEATTLE, WA 98119 (206) 281-4000
ATLANTA PASADENA EUGENE SEATTLE
ENVIRONMENTAL SCIENCE AND ENGINEERING

Great Falls Public Schools
Great Falls, Montana

CITY-COUNTY HEALTH DEPARTMENT
1130-17TH AVE SOUTH
GREAT FALLS, MONTANA 59403

PHONE 741-8700
EXT 555540

BOARD OF HEALTH
COUNTY COMMISSIONERS
CLARENCE
REPRESENTATIVE MEDICAL SOCIETY
REPRESENTATIVE DENTAL SOCIETY

October 26, 1979

CASCADE COUNTY AIR POLLUTION CONTROL PROGRAM

October 16, 1979

Emily M. Davies
Brown & Caldwell
Consulting Engineers
100 W. Harrison St.
Seattle, WA 98119

Dear Ms. Davies:

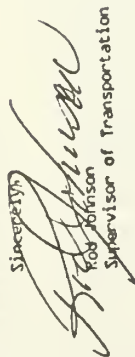
I hope this is the information you have requested.

After a study of the alternatives, we find that alternate number six would be the least desirable due to the close proximity to the residential area immediately to the north and south on Fox Farm Road. There is continuous home construction in this area and a By Pass would be very disruptive to the smooth and even flow of pedestrian and bicycle traffic going from south of East Fiesta to Meadowlark School on Fox Farm Road.

Alternate four or five would not cause us any problems which we can foresee.

We have at this time seventeen bus routes which would be involved with the students. This should not change appreciable within the next four or five years.

Sincerely,


Bob Johnson
Supervisor of Transportation

RJ:11

cc: Cascade County Surveyor

Brown & Caldwell Engineers
100 West Harrison
Seattle, Washington 98100

Attention: Susan Guttormsen

Dear Ms. Guttormsen:

Enclosed is the following information that you requested from our Department:

1. The carbon monoxide data from the 9th Street and 10th Avenue South monitoring station. The data enclosed is from January 1979 thru April 1979.
2. The wind patterns over the past ten years in the Great Falls area. (Wind Rose)
3. The total suspended particulate data from January 1979 thru September 1979.

I hope this information will be helpful to you in completing the study on the proposed South Arterial here in Great Falls. Should you require any additional information, please feel free to contact this office.

Sincerely,

CITY-COUNTY BOARD OF HEALTH

BY 
David Buttelman
Registered Sanitarian

DB/k1

Encs:

RECEIVED
OCT 18 1979

BROWN & CALDWELL
SEATTLE

RECEIVED
OCT 29 1979

BROWN & CALDWELL
SEATTLE



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

REC-120

MAILING ADDRESS
COMMANDER (CAN)
THIRTEENTH COAST GUARD DISTRICT
NINETEENTH AVE
MAYBROOK
PHONE (208) 482-5864

16590
Serial 592
26 October 1979

* HKM Associates
* ATTN: Mr. Tom Eggenberger
Planner, Transportation Division
Executive Plaza, Airport Industrial Park
P. O. Box 31318
Billings, Montana 59107

RE: Potential Bridge Crossings of
Missouri River near Great Falls, MT

Gentlemen:

Your letter of 19 October 1979, Serial 2M052.1021., to Commander Roe has been referred to this office for action. Your letter requested information on vessels and height restrictions for vessels operating on the Missouri River in the vicinity of Great Falls, Montana.

The Coast Guard does not maintain records of vessel traffic or type for the Missouri River. The Omaha District of the Army Corps of Engineers indicated that commercial navigation on that reach of the river was unlikely and probably recreational boating was the only form of navigation occurring. It is suggested that you contact the Corps of Engineers for further assistance.

Omaha District Army Corps of Engineers
P. O. Box 5
Omaha, Nebraska 68101

The Missouri River is considered navigable from the Montana/North Dakota border upstream to Three Forks, Montana. Although a navigable water of the United States, the Missouri River above Fort Benton is in the Advance Approval category for bridge permit purposes. For waterways under Advance Approval, Coast Guard permits are not required for the construction of bridges. Bridge clearances which are sufficient to pass the flow of high-water are considered adequate to meet the reasonable needs of navigation.

It is hoped that this letter has addressed your concerns.

Sincerely,

J. E. HOUDEAU III

Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

Copy to:
CCGBJ (mpg)

P.O. box 3342
Billings, Montana
59107
Executive Plaza
Airport Industrial Park

November 6, 1979
2M051.1021

(406)243-6354
359-1993

Ralph Boland

-2-

November 6, 1979

Ralph Boland
Ecological Services Division
Montana Department of Fish,
Wildlife, and Parks
1420 E. 6th Avenue
Helena, Montana 59601

Re: Great Falls South Arterial M5212(1)

Dear Mr. Boland:

Enclosed herewith please find a copy of a two sheet aerial photo exhibit of the project corridor for the above referenced project. This exhibit shows the south arterial alignments we have identified as reasonable alternatives for the draft EIS. Also shown are areas we have identified as sensitive or critical habitat, marshland, and grassland.

On November 5, Less Reichelt of the Montana Department of Highways, H.J. Ollila of FHWA, and Dick Jacobson of my staff visited the project site for the purpose of identifying wetland areas. We have identified wetlands in the area of the Missouri River and in Gibson Flats.

Along the Missouri River, the wetlands include Taylor Island and the lowland on the west bank of the River south of Taylor Island. These wetlands are included in the crosshatched area on the exhibit which are identified as a sensitive or critical habitat. These areas are also within the 100 year floodplain of the Missouri River. The south arterial must cross one of these wetland areas. However, we do not propose to place any fill in these areas. At both River crossing locations the crossing structure would be constructed over the wetlands. Two or three sets of piers would be constructed on the wetlands. Also the crossings have been located as far north as practical to minimize the impacts to these areas.

In Gibson Flats, the area shown on the exhibit as marshland was identified as a wetland area. The northerly proposed south arterial alignment would cross this wetland area. In addition, 39th Street South is proposed to be extended south to connect with the south arterial in this area, requiring construction of an interchange here. This wetland area is not presently public land. Recently a drainage ditch was constructed in Gibson Flats to improve the drainage in this area. This ditch, as constructed, is draining some of this wetland area. One possible method of mitigating the impacts of the south arterial would be to acquire the entire wetland area as designated to insure that the balance not needed for construction would be retained for use as a wetland.

We would appreciate your comments and suggestions relative to the wetland impacts and mitigation measures outlined above. We look forward to hearing from you at your earliest convenience. If you have any questions regarding this matter please contact me.

Sincerely,

HKM ASSOCIATES

Norman K. Gutscher, P.E.
Director, Transportation Division

Enclosure

NGK/RJ/tk

~ 10251.102 I



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Billings Area Office
Federal Building, Room 3035
316 North 26th Street
Billings, Montana 59101

ENVIRONMENTAL

ES

December 7, 1979

Norman K. Gutcher, P.E.
Director, Transportation Division
HKM Associates
P.O. Box 31318
Billings, MT 59101

Dear Sir:

We have reviewed your letter dated November 12, 1979, concerning the Great Falls South Arterial - MS212(1). These comments express our general concerns and reactions.

The aerial photographs accompanying your letter show that the Missouri River and several wetland areas would be altered to some extent by either of the two alternative alignments. From the perspective of conserving wildlife habitat, the alignment selected should be the one which minimizes adverse effects on wetlands. However, while that should be a primary consideration, effects on other wildlife habitat should not be ignored. In addition, the effects of the highway on drainage patterns, which may effect wetland areas outside the corridor, should be evaluated.

Filling of wetlands may require authorization through the Section 404 permitting process administered by the Corps of Engineers. Any fill placed in the Missouri River likewise may also require a permit. We assume you will be in touch with the Omaha District Engineer in this connection. In the event a Corps of Engineers' permit(s) under Section 404 of Public Law 92-500 are required in connection with this project, the Fish and Wildlife Service will be required to review the application. The Service may concur, with or without stipulations, or object to the proposed work depending on project effects on fish and wildlife resources which may be identified and evident at that time.

Every effort should be made to mitigate losses of any wetlands. The proposal outlined in your letter should be considered as one possible mitigative measure and we encourage it if better alternatives are not available. We recommend, however, that other wetlands in the project vicinity also be considered, if acquisition is a possibility.

Other considerations should include: 1) whether or not the project would encourage additional filling or drainage activities in wetlands; 2) recognizing and incorporating opportunities to enhance wetlands and other types of wildlife habitat into project design; 3) planting of native vegetation in areas alongside the roadway which are altered by construction; and 4) incorporating measures designed to reduce loss of wildlife from vehicular traffic.

Sincerely,


John C. Wood
Acting Area Manager

cc: Director, Montana Department of Fish, Wildlife, and Parks,
Helena, MT
Regional Director, USFWS, Denver, CO (ENV)

Z M O S I . 1 0 2 I



MONTANA HISTORICAL SOCIETY
HISTORIC PRESERVATION OFFICE

225 NORTH ROBERTS STREET • (406) 449-4584 • HELENA, MONTANA 59601

January 8, 1980

Mr. Homer G. Wheeler, Assistant Administrator
Engineering Division
Dept. of Highways
Helena, MT 59601

RE: Project #MS212(1)
Great Falls South Arterial

Dear Mr. Wheeler:

Thank you for the preliminary copy of the Draft EIS for Project #MS212(1), Great Falls South Arterial. I have read the section on historic and cultural sites and agree with the recommendation for the Lewis and Clark Portage route. If the other properties cannot be avoided in the course of project activities please initiate compliance with Sec. 106 of the Historic Preservation Act by requesting determinations of eligibility.

Thank you for the opportunity to comment.

Sincerely,

Robert Archibald
Dr. Robert Archibald
Acting SHPO

RAJTF/prb

cc Governor's Office

Data Recd. Proposed		Initial
Info	Act	Notes
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MONTANA HISTORICAL SOCIETY
HISTORIC PRESERVATION OFFICE

225 NORTH ROBERTS STREET • (406) 449-4584 • HELENA, MONTANA 59601

January 25, 1980

Mr. W.M. Stewart, Division Administrator
U.S. Dept of Transportation
Federal Highway Administration
Region Eight, Montana Division
301 S. Park, Drawer 10056
Helena, MT 59601

RE: HEB-MT
Montana M 5212(1) Great Falls South
Arterial

Dear Mr. Stewart:

I concur with the conclusions reached by your historical consultants on the above-named project. More specifically, field sites 1, 2, 3, and 4 are not eligible for listing on the National Register of Historic Places.

Thank you for the opportunity to comment on these four properties.

Sincerely,

Robert Archibald
Dr. Robert Archibald
Acting SHPO

RAJTF/prb



United States Department of the Interior
FISH AND WILDLIFE SERVICE

MAILING ADDRESS
314 Union Blvd
Helena, Montana 59601

Mr. N. N. Stewart
Federal Highway Administration
Federal Office Building
301 South Park, Drawer 10056
Helena, MT 59601

MAR 20 1980

Dear Mr. Stewart:

This is the Fish and Wildlife Service's (FWS) biological opinion prepared in response to your January 21, 1980, request for formal consultation on the effects the proposed Great Falls South Arterial will have on the bald eagle (*Haliaeetus leucocephalus*). The FWS has examined the proposed project in accordance with the Section 7 "Interagency Cooperation Regulations" (50 CFR 402. 43 FR 870) and the Endangered Species Act Amendments of 1978.

BIOLOGICAL OPINION

It is the Service's biological opinion that none of the alternative segments (alignments) of the Great Falls South Arterial are likely to jeopardize the continued existence of the bald eagle.

PROJECT DESCRIPTION

The proposed action is the construction of a controlled access four-lane facility, to be located south of 10th Avenue South, Great Falls, Montana. It would extend from the Core Hill Interchange of Interstate 15 to the intersection of 10th Avenue South and 57th Street, 7-1/2 miles to the east. Major intermediate features include two railroad crossings, the Missouri River crossing, the descent of the Sun River Bench, and five major access interchanges. The project length varies between 8.37 and 9.06 miles, depending on the particular alignment finally selected.

BASIS OF OPINION

The only part of the proposed arterial that may affect the bald eagle is the proposed Missouri River crossing. Wintering bald eagles occur along the Missouri River in the Great Falls area and may utilize those portions of the river affected by the crossing. No bald eagle nests occur in the project area. Thus, reproduction will not be affected. Under the



Save Energy and You Serve America!

selection process described in the Draft Environmental Impact/4(f) Statement, the identified reasonable alternatives limit the river crossing to two proposed locations. These are the "airport-bridge south of Taylor Island-57th Street" crossing (Segments 4 and 5) and the "airport-bridge at Taylor Island-57th Street" crossing (Segment 6).

Bald eagle use along the river during the winter is largely a function of "open water" which attracts waterfowl--a major prey of the bald eagle. At the time of the National Wildlife Federation's Mid-Winter Bald Eagle Survey in 1979 and 1980, the stretch of the Missouri River which includes Park Island, Taylor Island, and the slough south of Taylor Island (the project area) was frozen. Thus little or no eagle use was expected in this area. Only three eagles were counted in the Great Falls area on the 1980 survey and two on the 1979 survey. All eagles were outside the project area, two on Squaw Island and three near Rainbow Dam.

While these survey results do not represent actual numbers of eagles using the area, they do indicate that no major concentrations of wintering bald eagles occur in the Great Falls area and that the eagle use of the area is limited to individuals and not major population segments. It appears that the river at the two alternative crossings is frozen during most winters, restricting eagle use at these site specific locations. Open water, and hence eagle use, occurs more consistently downstream between the railroad crossing and Central Avenue Bridge due to the stronger currents and riffles. Thus, due to the low numbers of eagles, the availability of consistent open water adjacent to the project area, and having no effect on reproduction, the FWS concludes that the effects of the proposed project on the numbers, reproduction, and distribution of the bald eagle is not at a level that will jeopardize the species.

RECOMMENDATIONS

Because suitable perch trees are found along the river at both alternative crossings, some impacts to wintering bald eagles may occur, particularly in years or periods of time when the river does not freeze in these areas. Because alternate Segment 6 spans the river and crosses Taylor Island where there are more trees than at the site for alternative Segments 4 and 5, alternate Segment 6 may have the larger impact on eagles. Additionally, in years or periods of time when the river remains open around Park Island and Taylor Island, eagle movement and hunting between the two islands would be hampered by a crossing on the northern tip of Taylor Island. The differences in impact to the eagle between the two alternatives, however, are minimal. While consideration of the bald eagle should be given in the selection of the alternative alignment, other environmental impacts, particularly those to wetlands, should be weighed in comparison. Whichever crossing location is selected, the

impacts to bald eagles should be minimized by reducing the number of large trees removed to the greatest extent possible.

... This completes the formal consultation process on the effects the Great Falls Project Arterial may have on the bald eagle. If additional threatened or endangered species are listed or conditions of the proposed work change, consultation with the FWS should be reinitiated.

I appreciate your cooperation and interest in meeting our joint responsibilities under the Endangered Species Act.

Sincerely yours,

James C. Grimm

JAMES C. GRIMM
Acting Regional Director

Advisory
Council on
Historic
Preservation

1522 K Street N.W.
Washington D.C.
20005

Mr. H. N. Stewart
Division Administrator
Federal Highway Administration
Federal Office Building
301 S. Park, Drawer 10056
Helena, Montana 59601

The Memorandum of Agreement for the Great Falls South Arterial Project in Great Falls, Montana, affecting the Great Falls Portage has been ratified by the Chairman of the Council. This document constitutes the comments of the Council required by Section 106 of the National Historic Preservation Act and complies with the Council's regulations, "Protection of Historic and Cultural Properties" (36 CFR Part 800). A copy of the Agreement is enclosed.

The Council appreciates your cooperation in reaching a satisfactory resolution of this matter.

Louis S. Wall
Chief, Western Division
of Project Review
Enclosure

2	MAIL ROUTE	1	1
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220 K-10 PRESENT 7-25-61

[illegible]

WHEREAS, the Federal Highway Administration (FHWA) proposes to assist the Montana Department of Highways with construction of the Great Falls South Arterial Project (M 5212(1)); and,

WHEREAS, the FWA, in consultation with the Montana State Historic Preservation Officer (SHPO), has determined that this undertaking as proposed would have an adverse effect upon the Great Falls Portage, a National Historic Landmark, included in the National Register of Historic Places; and,

WHEREAS, pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. Sec. 4705, as amended, 90 Stat. 1320) and Section 800.14(d) of the regulations of the Advisory Council on Historic Preservation (Council), "Protection of Historic and Cultural Properties" (36 CFR Part 800), FHWA, has requested the comments of the Council; and,

WHEREAS, the Montana Department of Highways (DOH) was invited and participated in the consultation process; and,

WHEREAS pursuant to Section 800.6 of the Council's regulations, representatives of the Council, the FIMA, the Montana EPO and the Montana DCH have consulted and reviewed the undertaking to consider feasible and prudent alternatives to avoid or satisfactorily mitigate the adverse effect; and,

WHEREAS, the Lewis and Clark Portage route around the Great Falls of the Upper Missouri River is an historic trail of about 18 miles in length but with no known physical or visible remains;

NOTWITHSTANDING, it is mutually agreed that the undertaking will be implemented in accordance with the proposal contained in the attached letter from H.N. Stevart, Montana Division Administrator, Federal Highway Administration, dated February 19, 1960, to minimize the adverse effects on the above-mentioned property.

Page 2

Memorandum of Agreement
Levis and Clark Portage, Great Falls, MT
Federal Highway Administration

Robert S. Carter March 28, 1964
Executive Director
Advisory Council on Historic Preservation

Robert H. Jensen 4/7/68
Chairman
Advisory Council on Historic Preservation



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

REGIONAL OFFICE

Montana Division
Federal Office Building
301 S. Park, Drawer 10056
Helena, Montana 59601

February 19, 1977

HEB-MT Dunbar

Mr. Louis Wall
Advisory Council on Historic Preservation
P. O. Box 25035
Denver, Colorado 80225

Dear Mr. Wall:

Subject: Montana M 5212(1) Great Falls South Arterial

The Federal Highway Administration and Montana Department of Highways are jointly evaluating the impact of constructing an arterial highway south of the city of Great Falls, Montana. We have consulted with the State Historic Preservation Officer.

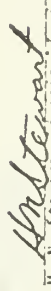
The alignment corridor for this undertaking will cross the Lewis and Clark Portage Route at Great Falls, a National Historic Landmark. Their route was an extensive 18-mile portage around the Great Falls of the Missouri River. No physical manifestation remains of the trail, and the site's integrity is dependent on maintaining the vista and environment close to the state it had been during the era of exploration. Commercial and residential development has occurred on portions of the route including a small residential area immediately north of the estimated crossing of the trail (Fig. 3-19 draft EIS). This raises the question of whether the site still should retain landmark status but the present vista to the southwest from this crossing is not significantly altered except for several roads and residential development along the river bank. The attached report and Pgs. 87-90 of the draft EIS discuss this further.


The proposed undertaking will adversely affect the portage site by altering the environment in the vicinity of the Missouri River. We have found no feasible and prudent alternate highway routing that would miss the landmark. The area has been subjected to considerable expansion, and the pattern will continue without construction of the arterial although the proposed transportation facility would likely accelerate the rate of growth. A four-lane highway will visually and audibly detract from the landmark's setting but the setting is changing already due to the presence of the city of Great Falls.


In keeping with the concept we should coordinate historic preservation with the environmental process we have the attached reports will serve as a basis for discussion.

Our agency, the State Highway Department, and the Montana SHPO agree that a measure to minimize this adverse effect would be to construct a vehicular turnout and erect an interpretive display near the location where it is believed the roadway intersects with the Portage Route in Section 19 T20N, R22E. This mitigative action is seen to have a lasting beneficial effect as it will increase the awareness of the traveling public concerning the historical significance of the portage trail and of the role of the Lewis and Clark expedition in the country's settlement. The SHPO will be consulted on the design and placement of the interpretive display. Should other resources be discovered during any stage of project planning or actual construction, our agency will ensure compliance with the process established by 35 CFR Part 800.

If, after reviewing the attached information, you concur there is no reasonable and prudent alternative to crossing the old trail and our mitigation plan we request you prepare a Memorandum of Agreement based on the proposal outlined in the above paragraph. Should further information be required, please contact our office (FIS # 585-5310).


H. N. Stewart, Division Administrator
Federal Highway Administration


Ronald P. Richards, Director
Montana Department of Highways


Robert Archibald
Acting State Historic Preservation Officer

FEB 26 1977



UNITED STATES

DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

Billings Area Office

Federal Building, Room 3035

316 North 26th Street

Billings, Montana 59101

IN REPLY REFER TO

ES

November 14, 1980

Mr. Richard L. Jacobson, P.E.

HKM Associates

P.O. Box 31318

Airport Industrial Park

Billings, MT 59107

Dear Mr. Jacobson:

We received your letter dated October 28, 1980, and accompanying attachments regarding the Great Fall Arterial W 5212 (1) highway project.

The Department of the Interior has forwarded its comments to the Federal Highway Administration. Those official comments of the Department included comments of the U.S. Fish and Wildlife Service.

Our review of the draft EIS indicated that the wetlands involved (along the river and Gibson Flats), although important to some wildlife species, are near residential areas, and to some extent, have already been degraded. Accordingly, we do not feel it practical to request mitigation for the loss due to filling for alternative D. However, the project should be constructed in a manner designed to minimize adverse effects.

The adverse impacts due to construction of the bridge crossing are not expected to be significant providing precautions are taken to minimize turbidity, sedimentation, and changes in hydraulic characteristics of the channel. You indicate in your letter that the bridge abutments and approach fills are outside the present floodplain boundaries, but that bridge piers are within the floodway or floodplain. As you are aware, any fill placed below ordinary high water may require a Section 10/404 permit. Fill placed in wetlands may also require a Federal 404 permit. If the activity requires a Federal permit, the Fish and Wildlife Service is mandated to comment on the activity. Our review of more detailed information for site specific conditions requiring a permit will indicate whether or not changes should be made to minimize adverse impacts to fish and wildlife resources. We expect that any changes recommended would be minor. Handling of material dredged from the river for the piers, construction of cofferdams, source and types of material used for

cofferdams, and timing of construction relative to fish spawning seasons are typical areas of concern evaluated for streams and rivers. In wetlands for this particular project, we would evaluate the roadway design to determine if any changes could be made which would reduce the amount of fill placed in the wetland and whether or not changes should be made to preserve wetland areas which could be indirectly affected by the project. An example of the latter would be drainage lines which could affect water level or water table.

We hope this information is useful in preparing the final EIS, and we regret the delay in answering your request.

Sincerely,

Wally Steucke
Wally Steucke
Area Manager

cc: Director, Montana Department of Fish, Wildlife, and Parks,
Helena, MT
Al Whippman, Montana Department of Fish, Wildlife and Parks,
Great Falls, MT

Supplemental Information Requested at

May 1, 1980 Public Hearing

Memo to Gordon Larson
October 31, 1980
Page 2

MONTANA DEPARTMENT OF HIGHWAYS
HELENA, MONTANA 59620

MEMORANDUM

TO: Gordon Larson, Supervisor
Consultant Design Section

FROM: James W. Hahn, Chief
Planning & Research Bureau

RE: Project H5212(1)
Great Falls South Arterial

DATE: October 31, 1980

Per your memo of October 1, 1980, in which you requested a response from our office to the questions posed by several people at the May 1, 1980 South Arterial public hearing in Great Falls, we offer the following information.

In regard to page 28 of the transcript, the consultant has the necessary information to provide Mr. Koontz with traffic counts and count locations on 10th Avenue South. Continuing with Mr. Koontz's comments on pages 28 and 29 he was concerned about the destination of trips in the vicinity of 9th Street and 10th Avenue South. In examining year 2000 traffic assignment trip tables, we found that of the trips originating in that area, 29.0% are destined to the NW section of town, 34.5% to the NE, 12.8% to the SE and 23.7% to the SW.

In consideration of Mr. Koontz's question relative to where the majority of traffic is coming from that uses 10th Avenue South, we analyzed assignment trip tables and determined that trips are being generated fairly uniformly from all parts of Great Falls.

Mr. Koontz was also interested in the type of trips that attribute to the congestion. Again, in our examination of trip tables for those traffic analysis zones in the 9th Street and 10th Avenue South area, we found that 48.5% are home based other, such as shopping trip, and 36.0% were non-home based type trips. These again are like shopping trips, but not originating from a home base.

On page 49 of the public hearing transcript M. Dalton asked how much of the traffic (in the year 2000) coming from out of town and passing through the city that would normally use 10th Avenue South, would be diverted to the South Arterial if it were built. An examination of the year 2000 External-Internal (E-E) trip table and travel times between external stations, we estimate that 98.7% of the E-E trips that would normally use 10th Avenue South in the year 2000, would be diverted to the South Arterial if it were built. He wish to make it clear that those trips are, for the most part, those trips entering east Great Falls destined for external points north and south on I-15 and those trips entering west Great Falls and destined for external points east of 10th Avenue South/57th Street.

Mr. Dalton also asked how much of the traffic never leaves Great Falls. The year 2000 trip tables indicate that 88.7% of the trips in the Great Falls study area never leave the boundaries of the transportation study area in any one day.

Lastly, Mr. Dalton asked how much of the traffic on 10th Avenue South would be diverted to the South Arterial if it were built. Year 2000 traffic assignments indicate that if the South Arterial were built, 10th Avenue South would experience a 19.5% reduction in traffic just east of I-15, a 7.8% reduction east of the Missouri River, a 41.4% reduction in the vicinity of the College of Great Falls, a 46.7% reduction in the vicinity of 33rd Street and a 19.0% reduction near 57th Street. These reductions occur due to traffic diverting to a less congested, higher travel speed, South Arterial facility.

We have provided a response to Mr. B. Duerling's comments (see pages 34-35 of the transcript) in the form of a letter dated September 9, 1980 to the Director of the Great Falls CCPB. A copy was provided to your office at the time of submittal, however, for your convenience we have attached a copy so that you may forward it to HMA along with this information.

If you have further questions, please advise.

JWH:WPC-dk:10F

708 698 550

WILLIAMSON, J. A. MONITORING

0026:JWH
File - 755.01
South Arterial
Great Falls

Dear Mr. Mooney:

SUBJECT: May 1, 1980 Public Hearing - South Arterial

In reference to the subject hearing we are providing information relative to the number of vehicle trip interchanges between the 10th Avenue South corridor and southwest Great Falls (Fox Farm Road area).

As you will recall during the public hearing, a Mr. B. Deering requested information pertaining to the percent of total vehicle trips generated along 10th Avenue South that originate, or are destined to the southwest sector of Great Falls. DGH representatives indicated that, although this type of information was not included in the South Arterial Study Report, it is available as part of the Great Falls Transportation Study. As such, Mr. Deering was advised that subsequent to finalizing the transcript of the public hearing the information could be furnished to him by the DGH through the local planning office. The following provides information pertaining to Mr. Deering's request, as reflected in the public hearing transcript.

Based on past travel demand, the indication is that by year 2000, approximately 80-100 percent of the total average daily vehicle trips (43,600) generated along the 10th Avenue South are destined to, and originate from southwest Great Falls. This is based on year 2000 land use projections developed during the transportation plan update and includes that area immediately adjacent on both sides of 10th Avenue South, from the Arden Bridge, east to approximately 57 Street South. The southwest Great Falls area includes that area south, west and east of Interstate 315 Spur/10th Avenue South, Missouri River and Interstate 15, respectively.

Mr. John Carney
Page 2
September 9, 1966

As an additional note, traffic projections utilized in the South Arterial Study evolved from the Green Hills Transportation Plan and, as reflected in the study, a South Arterial facility would serve a wide range of travel desires. Improving access from southwest Great Falls to the 10th Avenue South area represents just one travel desire consideration.

Please ask that you pass this information on to Mr. Deering and should you have any questions regarding the information contained in this transmittal, please contact my office. A mailing address for Mr. Deering, as regards in the Deering transmittal, is: Six 123, Great Falls, Portland.

Sincerely,

James W. Wahn, Chief
Planning and Research Bureau

H: KB: sh
 C: Dan Bartsch, JCH
 Urban Section

2704 POKRSNCY

[illegible]

0026:JWH
File - 755.01
South Arterial
Great Falls

Dear Mr. Mooney:

In reference to the subject hearing we are providing information relative to the number of vehicle trip interchanges between the 10th Avenue South corridor and southwest Great Falls (Fox Farm Road area).

As you will recall during the public hearing, a Mr. B. Deering requested information pertaining to the percent of total vehicle trips generated along 10th Avenue South that originate, or are destined to the southwest sector of Great Falls. DOH representatives indicated that, although this type of information was not included in the South Arterial Study Report, it is available as part of the Great Falls Transportation Study. As such, Mr. Deering was advised that subsequent to finalizing the transcript of the public hearing the information could be furnished to him by the DOH through the local planning office. The following provides information pertaining to Mr. Deering's request, as reflected in the public hearing transcript.

Based on past travel studies the indication is that by year 2000, approximately 8-10 percent of the total average daily vehicle trips (43,600) generated along I-70 Avenue South are destined to, and originate from southwest Great Falls. This is based on year 2000 land use projections developed during the transportation plan update and includes that area immediately adjacent on both sides of 10th Avenue South, from the Warden Bridge, east to approximately 57 Street South. The Southwest Great Falls area includes that area south, west and east of Interstate 315 Spur/10th Avenue South, Missouri River and Interstate 12, respectively.

As an additional note, traffic projections utilized in the South Arterial Study evolved from the Green Hills Transportation Plan and, as reflected in the study, a South Arterial facility would serve a wide range of travel desires. Improving access from southwest Great Falls to the Loch Avenue South area represents just one travel desire consideration.

We ask that you pass this information on to Mr. Deering and should you have any questions regarding the information contained in this transmittal, please contact my office. A mailing address for Mr. Deering, as reflected in the hearing transcript, is: Box 193, Great Falls, Montana.

Sincerely,

James W. Hahn, Chief
Planning and Research Bureau

JWH:KB:sh
 CC: Dan Bartsch, JOH
 Urban Section

Draft EIS Comments



HISTORIC PRESERVATION OFFICE

2225 NORTH ROBERTS STREET • (406) 449-4584 • HELENA, MONTANA 59601

March 10, 1980

Mr. Stephen C. Kologi, Chief
Preconstruction Bureau
Dept. of Highways
Helena, MT 59601

RE: M 5212 (1)
Great Falls

Great Falls South Arterial

Dear Mr. Kologi:

Thank you for the opportunity to review the Draft Environmental Impact/4(f) Statement. I concur with the results of the study as it addresses cultural and historic properties and demonstrates an awareness of Cultural Resource Management legislation. It also points out the importance of the Lewis and Clark Portage Trail to Montana's cultural heritage.

Sincerely,

Dr. Robert Archibald
Acting SHPO

RA/TF/prb

[illegible]

To: **George Alfred**
Minister, Department of
Agriculture

From: **Fontaine St. Germain**
Office of Budget and Program Planning
Capital Area
Bellevue, Montana 59601

Environmental Impact Assessment Title: Draft EIS Great Falls South Arterial

Clearinghouse File Number: L-70-02 (1)

F.I.S. Agency Sponsor: Montana Department of Highways

SPONSOR ADDRESS: Preconstruction Bureau
2720, Riverside Avenue, Helena, Montana 59601

CONTACT PERSON: Stephen C. Kologi, Chief

COMMENTS DUE BY: April 18, 1950

The Above Named Statement

_____ is enclosed for your review and comment.
 _____ should have been received by your agency from the sponsor.
☒ _____ is available at the Clearinghouse Office for review (only one
 _____ copy was received).

Please evaluate the assessment for its consistency and fulfillment of statewide and local objectives related to:

1. The Environmental impact of the proposed action.
2. Any adverse environmental effects which cannot be avoided should the proposal be implemented.
3. Alternatives to the proposed action.
4. The relationship between local short-term uses of man's environment and maintenance and enhancement of long-term productivity.
5. Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

IF YOUR AGENCY HAS COMMENTS ON THE ENVIRONMENTAL IMPACT ANALYSIS, PLEASE SEND THE COMMENTS DIRECTLY TO THE AGENCY SPONSOR AND FORWARD A COPY OF THE COMMENTS TO THE STATE CLEARINGHOUSE.

IF YOUR AGENCY DOES NOT INTEND TO COMMENT, PLEASE CHECK THE BOX BELOW AND RETURN THIS FORM TO THE STATE CHIEF OF POLICE.

NO COPY

Reviewer's Signature W. L. G. G. G. Date 12/11/82
 Title Ch. 12. The Power of the



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
EXECUTIVE TOWER 1425 CHURCH STREET
DENVER, COLORADO 80202

REGION VIII

March 14, 1980

IN REPLY REFER TO
8502

Mr. Stephen C. Kologi, Chief
Preconstruction Bureau
Montana Department of Highways
2701 Prospect Avenue
Helena, Montana 59601

Dear Mr. Kologi:

Thank you for the opportunity to review and comment on the draft Environmental Impact/4(f) Statement for Project Number MS212(1): Great Falls South Arterial.

Your draft has been reviewed with specific consideration for the areas of responsibility assigned to the Department of Housing and Urban Development (HUD). The review considered the proposals' compatibility with local and regional comprehensive planning, impacts on urbanized areas and impact upon HUD-assisted open space sites. Within these parameters, this statement is adequate for our purposes.

If you have any questions regarding these comments, please contact Mr. Carroll F. Goodwin, Area Office Environmental Clearance Officer, at (303) 837-3102.

Sincerely,

Carroll F. Goodwin
Carroll F. Goodwin
Director
Program Planning and Evaluation

AREA OFFICE
Denver, Colorado

FEDERAL AID HIGHWAY ADMINISTRATION

20051123

11/14/80



PROJECT MONITORING
AND
REPORTING

March 19, 1980

Mr. Stephen C. Kologi, Chief
Preconstruction Bureau
Montana Department of Highways
2701 Prospect Avenue
Helena, Montana 59601

Dear Mr. Kologi:

We have reviewed your draft environmental impact statement (DEIS) on the proposed Great Falls South Arterial project and do not foresee any impact on aviation or its activities.

Thank you for the opportunity to review your DEIS.

Sincerely,

Edward G. Tatum
EDWARD G. TATUM
Chief, Planning Staff

DATE RECEIVED	3/21/80
FILED	
INDEXED	
SERIALIZED	
FILED	

20051102

RECEIVED
MONTANA DEPT. OF HIGHWAYS
APR 11 1980

Rivershore Mobile Home Park
Office
Route 2, South
Great Falls, Mt. 59405
April 8, 1980

Stephen C. Kologli, Chief
Preconstruction Bureau
Montana Department of Highways
2701 Prospect Avenue
Helena, Montana 59601

Dear Mr. Kologli,

Thank you for sending a copy of the Draft Environmental Impact/4(f) for MS212(1), Great Falls South Arterial. After reading this through, we believe alternate #6 would displace a greater number of residences than an alternate further south.

We own Rivershore Mobile Home Park on the east side of the Missouri and Alternate #6 would go right through it, making it impossible to carry on as a business. The occupants, of approximately 49 trailers would have to move.

We are in favor of a south arterial for Great Falls to alleviate congestion on Tenth Ave. So., but we recommend consideration of Alternate #6 be eliminated, and a route further south be chosen.

The trailer court would cease functioning as a business since the water supply would be eliminated and the gas lines, electric lines, sewage lines would be destroyed.

Yours very truly,

RIVERSHORE MOBILE HOME PARK
Robert Lawrence Livingston
Mr. and Mrs. Al Livingston, Owners
2745 Greengarden Drive
Great Falls, Mt. 59404

Date Recd. Preconst. 4/11/80
MAIL ROUTE

20051102

STATE OF MONTANA

DEPARTMENT OF
HIGHWAYS AND CITIES

Helena, MT 59601
March 25, 1980

Mr. Steven Kologli, Chief
Preconstruction Bureau
Montana Department of Highways
Capitol Station
Helena, MT 59601

Steve:

We have received and reviewed your draft Environmental Statement for Montana project # 5212(1) Great Falls South Arterial.

Our region could find no problems with the Statement or anticipated impacts. We thank you for the opportunity to comment.

Regards,

Ron Holliday
RON HOLLIDAY, Administrator
Parks Division

BA:sue

Date Recd. Preconst. 3/26/80
MAIL ROUTE

We are delighted that in favor of the "South Arterial" highway to go through alternate 6.

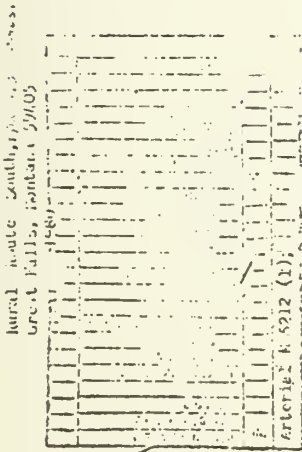
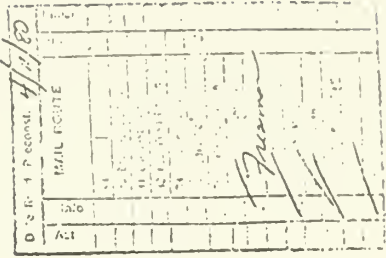
We have purchased this land and have built the property to require to 4-5 bedroom rental in each - 2 bedroom rental located a 3 bedroom rental located also 3 for a storage building, these 3 are adjacent to the rental houses, two wells have been drilled and now produce water, also the fire has been installed to a sprinkler system, we have excellent drinking water and great produce.

There are 97 Colorado Blue Spruce trees planted from seedlings and with proper care in watering, fertilizing, pruning and trimming have grown into large beautiful trees. Also 10 trees have been planted and now bearing fruit.

We have taken brown sandy soil and planted and fertilized grass to produce lovely lawns. Also the land has produced beautiful gardens with cut and work.

It is our conclusion that improving 10th Ave to South is more benefit than the south arterial. There are other alternatives to be considered rather than impact or cause parkways, school sites, horse businesses, wildlife sanctuaries, and historical areas to be destroyed.

Leonard Walenewski
Mr Leonard Walenewski



APR 11 1979
 Stephen W. Logan, Chief
 Reconstruction Bureau
 Montana Department of Highways
 2701 West Street
 Helena, Montana 59601

Dear Sir:

In reference to the Great Falls South

Attending the meeting April 5, 1979, there was no mention of a proposed route for the South Arterial on the alternate 6 route. At that time the map showed alternate 4 and 5 only. Public input suggested that additional route concepts be considered. Who was the public input—the person or persons on alternate 4 and 5?

In studying the maps and descriptions of the alternatives, the most reasonable

alternative is alternate 4 and 5.

Reasons:

1. most inexpensive
2. most practical
3. narrow river crossing
4. fewest residential displacements—only 4 or 5 homes and only two commercial displacements
5. can cross Missouri River, River Drive and the Burlington Northern Rail Road with the same crossing structures
6. greatest amount of usable agricultural land
7. alternate 4 or 5 will not directly impact any designated park or recreation land
8. alternate 4 or 5 less impact because the crossing site does not require roadway fill within the floodplain
9. longest and flattest alignment and least impact to adjacent air quality in Great Falls
10. alternate 4 or 5 provide the best locations of descending Gore Hill
11. alternate 4 or 5 will avoid any direct impacts to residential land and mitigation features not be required
12. the lay of the land on that ridge for alternate 4 or 5 is definitely the best location for a 4-lane highway

The most unreasonable alternative is alternate 6 for the following reasons:

1. most expensive
2. have to cross the Missouri River twice
3. impact 63 residences—impacted 145 to 176 residences
4. destroyed existing more fill-in
5. 16 or 19 businesses disrupted
6. directly impact Taylor Island, the river frontage park site, Grande Vista school site and many other parks
7. would reduce the most significant noise level increase
8. cause serious impact to it's potential value as a wildlife sanctuary
9. more trees would be destroyed on alternate 6
10. decreased property values in residential areas and personal impacts

Mail of Filer

HLB:JP

Great Falls South Arterial

P.O. Cl.:

Stephen C. Kolozi, P.E.
Chief Preconstruction Bureau
Montana Department of Highways
Helena, MT 59601

M 5212
GT Fall 3
South APTERIAL-

Our office has reviewed the impact study on all alternatives for the proposed locations for a southern arterial highway connecting the airport interchange on the west with an intersection at 37th Street on the east.


Based on our type of business, delivery, the U.S. Postal Service would favor alternative D-b as it would require the least amount of relocations. The U.S. Postal Service at Great Falls, MT is currently providing delivery into all of the effected areas and this service would not change regardless of which alternative is ultimately selected.

Harry L. Bennett
Harry L. Bennett
Postmaster
Great Falls Post Office
Great Falls, NT 5

[illegible]

2. Alternate #7, again from a layman's point of view, would seem most suitable if the South Arterial were primarily intended to move thru traffic around the city. A connection between Interstate 15 with highway east and southeast, could function very effectively on this southernmost alternative, without undue hardship for motorists and, I believe, principally truckers who wisely avoid traffic congestion in the interest of conservation of time.

Sincerely,


R. W. Solberg
RWS/mn

DATE	11/18/50
TO	MR. SOLBERG
FROM	
SUBJECT	

R. W. Solberg
Rt. 4, Box 279
Great Falls, MT 59404

Mr. Stephen C. Kologri, Chief
Preconstruction Bureau
Montana Department of Highways
2701 Prospect Avenue
Helena, MT 59601

Dear Mr. Kologri,

We have reviewed, on numerous occasions, the Draft Environmental Impact Statement relating to the Great Falls South Arterial, and are pleased to have been included in the mailing.

We wish to speak, again, in opposition to the proposed project, as we are greatly concerned over the anticipated effect the project would have on our rural-like neighborhood. A vast increase in vehicle traffic would raise noise levels, create added air pollution, create traffic congestion on the already unsafe Fox Farm Road, and greatly disrupt the life style we sought when we chose to move into this area.

Being a typical two car family making an average of at least three trips per day to areas east of the river, we do not find either the Tenth Avenue South traffic or the two lane Warden bridge to be particularly objectionable. We are firmly of the belief that the current project at Fox Farm Road and 6th Street SW, will completely avoid the minor bottleneck that currently exists at that intersection. The construction of added lanes on Warden bridge will definitely enhance the traffic flow both east and west bound from Fox Farm Road to Fifteenth Street, and short delays now being experienced, will be eliminated.

We favor a NO action alternative on this project. In the event that, based on accumulated data, NO ACTION is not a viable alternative, we would then endorse the following two alternatives:

1. Alternate #6, which would provide the most direct route within the confines of the proposed project. The state already owns land on part of the route. The system would be more conducive to use by residents of Grande Vista, Melview and Fox Farm Addition, which represent the bulk of the population in the area and, from a layman's point of view, would represent the most practical expenditure of funds. The park in question at the river, cannot be a major obstacle, as the highway would only use a few of its estimated ninety acres. The objections of the school board over a proposed school site cannot be too meaningful, in view of the recent closing of five Great Falls public schools.

Mail of file.

Response to City-County Planning Board Comments Dated 4-17-80.

1. Correction has been made. See the section on "Population" in Chapter 3.
2. Correction has been made. See the section on "Population" in Chapter 3.
3. Since source of these projections is unclear, they have been deleted. See Table 3-1.

GREAT FALLS CITY-COUNTY PLANNING BOARD
SERVING THE COUNTY OF CASCADE AND THE CITY OF GREAT FALLS, MONTANA

April 17, 1980

Mr. Stephen C. Kologji, P.E.
Chief - Preconstruction Bureau
Montana Department of Highways
Helena, Montana 59601

Dear Mr. Kologji:

Thank you for allowing us the opportunity to review the Draft Environmental Impact/4(f) Statement for the proposed Great Falls South Arterial.

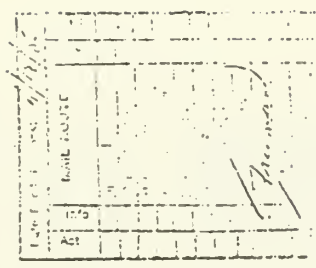
Obviously a considerable amount of time and effort have gone into preparing the report. Overall, we feel the document is well done and addresses all concerns. To assist in the preparation of the final report, we provide the following observations.

- 1) Page 48, paragraph 3. The overbuilding of homes should more appropriately be 1977-78 instead of 1972-73.
- 2) Page 48, paragraph 4. It is stated that commercial development occurred throughout the suburban area. This should more appropriately state that development was throughout the urban area. Suburban implies the fringe areas of a community. Also, it is stated suburban growth has been mainly to the north and south. We feel growth has been to the west and south.
- 3) Page 49, Table 3-1. We do not recall providing Year 2010 and 2020 population projects. Perhaps this should be eliminated or the appropriate source credited.

Sincerely,

John Larnsey
John Larnsey
Planning Director

JW/BK/d



CIVIC CENTER GREAT FALLS, MONTANA P.O. BOX 470, 59403 (406) 733-5841



DEPARTMENT OF THE ARMY
OMAHA DISTRICT CORPS OF ENGINEERS
SOLIDUS POST OFFICE AND COURTHOUSE
OMAHA, NEBRASKA 68102

APPROVED
ATTACHED VELD

APR 28 1980

PROFD-A

HELENA, MONTANA

21 April 1980

Mr. Steven Kologi, Chief
Preconstruction Bureau
Montana Department of Highways
2701 Prospect Avenue
Helena, MT 59601

Dear Mr. Kologi:

We have reviewed the Draft Environmental Impact Statement (DEIS) which arrived with your letter dated 26 February 1980. Our comments are as follows.

- a. The Proposed Action, page 1 states that a Section 404 permit is required for crossing the Missouri. We wish to correct this statement and advise that a permit would be required for the placement of fill material including cast-in-place concrete, within the Missouri River, not for crossing the river.
- b. A U.S. Coast Guard Permit is required prior to constructing a bridge over a designated navigable water of the United States.
- c. A Department of the Army permit pursuant to Section 404 of the Clean Water Act will be required for any fill material placed in wetlands, as is indicated on page 101 and figure 3-23.
- d. Page 105, paragraph 7 states that approximately 1,000 feet of fill will be placed in the floodway at the proposed Missouri River crossing. The DEIS states that this fill will increase the 100-year flood less than 0.1 foot. It would appear that some miscalculation has been made in as much as the U.S. Geological Survey in the Cascade County Flood Insurance Study states that the floodway which they computed along that reach of the river had a rise of 0.5 feet relative to existing conditions. If this latter statement is accurate, no floodway encroachment is permissible without raising stages more than 0.5 feet. Raising flood stages more than 0.5 feet is a violation of state floodplain management criteria.

PROFD-A
Mr. Steven Kologi

21 April 1980

e. Pages 107 and 108, paragraph 3 and 1, respectively, state that the drainage structures through the roadway embankment in the Gibson Flats area are "designed to accommodate at least 50-year flooding, with minimal amounts of additional surcharging required to handle 100-year flooding". The DEIS has not quantified this minimal amount of additional surcharging but Federal policy states that this "minimal amount of additional surcharging" should be less than 1 foot; Montana policy states that it should be less than 0.5 foot.

f. It is not clear in the DEIS whether gravel pits to be excavated have been included in the assessment of the presence of historical and archeological sites.

g. The Draft 4(r) Statement has addressed impacts associated with the several alternative routes.

We thank you for continuing to involve us in your planning and look forward to receiving the Final Environmental Impact Statement.

Sincerely,

John E. Velehradsky
JOHN E. VELEHRADSKY
Chief, Planning Division

DATE	21/4/80
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DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
THIRTIETH COAST GUARD DISTRICT
315 SECOND AVE
SEATTLE, WASH 98101
PHONE 206 442-7523

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Mr. Stephen C. Kologi,
Chief, Preconstruction Bureau
Montana Department of Highways
2701 Prospect Avenue
Helena, Montana 59601

Dear Mr. Kologi:

We have reviewed your Draft Environmental Impact/Section 4(f) Statement of 26 February 1980. The document addressed your MS212(1), Great Falls South Arterial highway project.

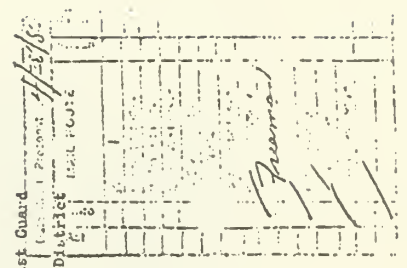
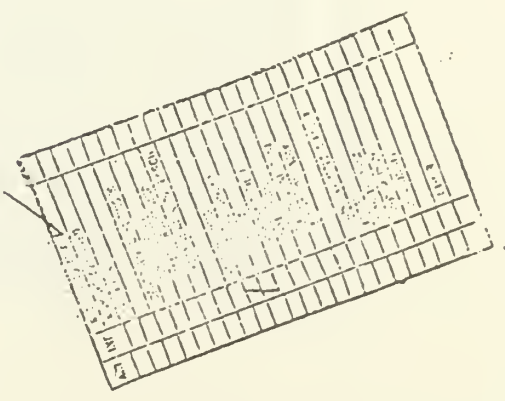
This proposed action will involve a crossing of a waterway considered navigable by the Coast Guard; however, the location is subject to advance approval and no Coast Guard Bridge Permit will be required. We have no other comments pursuant to the Council on Environmental Quality Regulations, 40 CFR Parts 1500 - 1508.

Thank you for the opportunity to review this document.

Sincerely,

Richard F. Malm

RICHARD F. MALM
Captain, U.S. Coast Guard
Chief of Staff
13th Coast Guard District



- (a) loss of valuable wetlands;
- (b) loss of agricultural land;
- (c) loss of wildlife habitat;
- (d) noise impact on existing residences;
- (e) loss of existing property values;
- (f) loss of historical resources.

These alternatives would also have possibly serious secondary growth impacts. That is, this south by-pass would undoubtedly encourage, growth in the southern area where it would be located, an area now little developed. This growth would not only further impact the same factors considered under primary impacts but would also:

- (a) probably help hasten the demise of the CBD as now commercial areas develop along this corridor;
- (b) further encourage sprawl development with attendant degrading of older neighborhoods;
- (c) further encourage sprawl development and attendant energy consumption involved with dependence on the private automobile.

Given the above factors and that an upgrading of 10th Avenue South may possibly solve Great Falls transportation problems, we have reservations concerning the impacts involved in a southern arterial.

Our more specific comments are found in the attachment.

According to EPA rating system for draft EIS's this statement and the project described is rated ER-2 (environmental reservations - insufficient information). If you have any questions please contact Mr. Gene Taylor in our Montana Office in Helena at 449-5486.

Sincerely,

Gene A. Luckro, DRA
for Roger L. Williams
Regional Administrator

Date Rec'd: 4/23/80	
FILED	INDEXED
FBI - MONTANA	
APR 23 1980	
HELENA, MONTANA	

Attachment

RECORD COPY
MONTANA DEPT. OF HIGHWAYS
APR 23 1980

APR 28 1980

Ref: HELENA, MONTANA

Mr. Stephen C. Kologi, Chief
Preconstruction Bureau
Montana Department of Highways
2701 Prospect Avenue
Helena, Montana 59601

Dear Mr. Kologi:

We have completed our review of the draft environmental impact statement for the Great Falls South Arterial. We have found the EIS to generally be a complete and objective analysis and description of the various alternatives which you considered "reasonable" (page 17).

Our comments are categorized under two headlines: (1) comments on the over-all impacts of the project itself, and (2) specific comments on some of your methodologies and conclusions regarding the impacts of the alternatives you analyzed.

First, concerning the project itself:

We question the exclusion of the "upgrade 10th Avenue South" alternative as "reasonable" (page 17). This alternative does not have the significant land use, wetlands, loss of agricultural land, wildlife, noise, relocation, etc. detriments that can be attributed to the southern arterial alternatives that were found to be "reasonable" and thus deserving further analysis. Nor would it lead to as much total energy consumption (page 99). The detriments shown for this alternative are that it would not provide a southern area access, would not anticipate southside growth, and would not allow through traffic to by-pass 10th Avenue South.

However, no solid argument is made for the need for through traffic to be able to by-pass 10th Avenue South. (Would an improved 10th Avenue South eliminate this possible need?) Second, we question the use of "anticipated southside growth as a criteria for evaluating the alternatives (especially since it appears that the improve 10th Avenue South alternative may have been eliminated as reasonable partly on this basis). This criteria is also termed "improve access for future development" (Table 3-17).

The south arterial alternatives that were analyzed in depth would have serious primary impacts. These include:

Attachment - Comments on Great Falls South Arterial Draft EIS

- (1) Page 10. The paragraph under "Implementation of a High Level of Mass Transit" is very general. We believe a more complete discussion of the impact of a south arterial and its probably impact on sprawl development on mass transit should be included.
- (2) The impacts of further sprawl development on energy use should be more completely discussed.
- (3) Great Falls has shown a marked decrease in population growth in recent years (page 48). Does this fact negate any of the transportation planning assumptions?
- (4) The EIS states that the project would increase the economic base of the area (page 55). If development is encouraged to the south won't the economy of the CBD be devalued? If Great Falls is not growing rapidly, growth to the south may only be a redistribution of economic, tax base, etc. activity.
- (5) It is stated on page 57 that additional federal funds for construction of this project will not be likely and therefore that there would be a considerable local tax burden to actually finance the project. This is a major impact that should be fully analyzed (how much of a burden and on whom) in the EIS.
- (6) The southern arterial runs east to west. It is stated on page 59 that it would improve access to the CBD. We can see that north-south arterials would lead to the CBD but not on east-west.
- (7) What flood plain control measures are in use and how effective have they been in controlling flood plain development (ref. Page 108)?

Great Falls Arterial EIS - Air Quality Comments

- (8) On page 116 the term "APR" in the equation near the bottom of the page should be "QPR".
- (9) Page 116. What are the assumptions and rationale relating to the development of the correction factors (CT) for 1990 vehicle emissions?
- (10) Page 117. Was alternative 68 used in calculating worst case conditions?

- (11) Page 117. Some background concentration should be included in the estimated concentration at Fox Farm Road Interchange and a rationale for its selection provided.
- (12) Page 117. The state has revised its proposed one hour CO standard to 23 ppm.
- (13) Page 118. It is alleged that HIKAY is inappropriate for use in evaluating conditions on 10th Avenue South because of possible street canyon effects. This is difficult to understand because 10th Avenue South is a wide street with generally ample setbacks and has extremely few buildings more than two stories high along its entire length. This matter should be reviewed and if it is still concluded that HIKAY is inappropriate, a detailed rationale should be provided.

In any case, some numerical estimate of the worst case condition on 10th Avenue South should be provided. An alternative would be to utilize EPA's "Carbon Monoxide Hot Spot Guidelines" to generate the estimates.

pages 1 & 2 - As discussed in Chapter 2, "ALTERNATIVES", consideration was given to the upgrading of 10th Avenue South as a reasonable alternative. However, this alternative will not eliminate the need for an east-west arterial route in south Great Falls. It will only serve to reduce congestion on 10th Avenue South in the short term and thereby help to reduce the need for traffic to be able to bypass 10th Avenue South.

The preliminary 1980 census figures indicate the area south of 10th Avenue South experienced remarkable growth during the period between 1970 and 1980. The City-County Planning Board expects this growth will continue. The southwest Great Falls area has greater potential for development than any other section of the City. Defining the location of this much needed arterial route now will serve to minimize impacts to future development and permit more orderly growth in the area.

The south arterial is a major part of the year 2000 recommended major street network in the Great Falls Transportation Plan. Also the Tenth Avenue South Improvement Plan, 1979, recommends that planning continue for a south arterial even if 10th Avenue South is upgraded.

The energy use calculations conducted as a part of this EIS/planning study do not indicate a significant difference in total energy consumption for any of the alternatives based on the current state of the art in energy use comparisons.

Impacts to the CBD or 10th Avenue South businesses are not expected to be significant. Access control on the south arterial will prevent this route from becoming another 10th Avenue South. The Great Falls Chamber of Commerce is very much in support of a south arterial because they feel it will greatly reduce congestion in the Fox Farm area and on 10th Avenue South. Improved accessibility may strengthen the viability of the CBD and 10th Avenue South businesses.

Response to Comments in Attachment to EPA Letter Dated 4-23-80

- (1) Discussion of "Implementation of a High Level of Mass Transit" has been expanded. See Chapter 2.
- (2) The impacts of further sprawl development are discussed in Chapter 3 under Social and Economic Impacts and under Resource Impacts.

- (3) As discussed in Chapter 1 and in Chapter 3 under the social and economic section, the population projections have been reassessed in light of the preliminary 1980 census results and reaffirmed as being reasonably valid, particularly for the south and southwest Great Falls areas.
- (4) It is not felt that the south arterial would have any significant impact on the economy of the CBD. Refer to Chapter 3 under economic impacts and under secondary impacts.
- (5) To minimize project funding impacts, the south arterial will be built in stages with only two lanes built initially. Refer to Chapter 3 under the discussion of "Project Financing Impacts."
- (6) While the south arterial does not directly connect with the CBD, it will have a secondary effect on accessibility to this area. Refer to Chapter 3 under secondary impacts in the "Social and Economic" section.
- (7) The Floodplain Zoning Regulations were adopted by the Cascade County Commissioners on July 1, 1978 in conformance with federal and state statutes. The ordinance is administered by the Cascade County Zoning Administration. The Great Falls City-County Planning Department advises the control measure has been termed as being effective in controlling floodplain development. Refer to the "Flood Hazard Evaluation" section in Chapter 3.
- (8) Correction has been made as noted.
- (9) The assumptions and rationale relating to the development of the correction factors are discussed in the "Air Quality" section in Chapter 3.
- (10) Alternate segment 6, specifically at Fox Farm Road, was used in calculating worst case conditions for the south arterial. Traffic volumes on alternate segment 6 are relatively independent of those on alternate segments B or D.
- (11) Refer to "Air Quality" section in Chapter 3 for discussion of background concentration of CO at the Fox Farm Road location.
- (12) Correction has been made as noted.
- (13) The Workbook for Comparison of Air Quality Models, U.S. EPA, May 1978, states that the RIWAY model is inappropriate for roadway configurations in which local wind circulations dominate. The Draft EIS stated that parts of 10th Avenue South may have street canyon effects. The RIWAY model (Zimmerman and Thompson, 1975) is a short-term Gaussian model which provides estimates for CO averaging

times of about one hour. Traffic emissions are simulated by assuming uniform emissions over a straight-line source of finite length for each lane of a highway. Because 10th Avenue South exhibits interrupted flow conditions and uniform emissions are an inaccurate assumption, it is concluded that BHMAT is inappropriate for predicting CO emissions along 10th Avenue South.

Enough estimates of CO emissions are provided in the "Air Quality" section of Chapter 3. It appears that higher ambient CO concentrations would occur on 10th Avenue South if a south arterial is not built. The Great Falls City-County Planning Department will be retaining a consultant to study the air quality problems on 10th Avenue South. This study, which should be completed by September 9, 1981, will involve more detailed emission estimates along this route.



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

KB-50/206

APR 24 1980

Dear Mr. Stewart:

This is in response to the request for the Department of the Interior's review and comments on the draft environmental/Section 4(f) statement for the Great Falls South Arterial, Cascade County, Montana.

PRELIMINARY SECTION 4(f) COMMENTS

1. Cultural Resources

Based upon information and analysis in the draft statement, we concur that there is no feasible and prudent alternative to the use of lands from the Great Falls Portage National Historic Landmark. In addition, we concur that construction of a turnout and interpretive display near the location where the south arterial crosses the portage route constitutes appropriate mitigation.

2. Park and Recreation Resources

Since alternatives exist which would avoid park and recreation areas (segments 4 and 5), we would not concur in a Section 4(f) finding for segment 6.

ENVIRONMENTAL STATEMENT COMMENTS

1. Cultural Resources

The final environmental/Section 4(f) statement should briefly discuss the methods used in conducting the pedestrian survey of alternative alignments (see p. 80), especially the survey methods used to identify archeological sites either in the Missouri River floodplain or along the river terrace system. This is to ensure full identification of potential Section 4(f) properties in the project area. The final document should also contain the results of consultation with the Montana State Historic Preservation Officer, including his concurrence in the proposed mitigation measures and any opinions on the archeological potential of the area.

2. Mineral Resources

The geology as described under "Mineral Resources" on page 88 is outdated. The coal-bearing rocks, originally assigned to the base of the Kootenai Formation, are now generally considered to be part of the Morrisson Formation. The west end of the proposed project (Sun River

Mr. Harold N. Stewart, Helena, Montana

Bench) is underlain by the Colorado Group (not shown on fig. 3-20, p. 89). The basal sandstone of the Colorado (Flood Sandstone of the Blackleaf Formation) is an important aquifer for domestic water supplies on Sun River Bench. The Flood Sandstone lies on top of Kootenai shales. Parched or semi-parched water-table conditions have developed. Many seeps and springs occur along the outcrop contact of these two units around the edge of the Sun River Bench. Disruption of this parched water table will undoubtedly cause construction problems, but may also interfere with existing domestic ground-water supplies.

The last sentence of paragraph 3, page 91, "These deeper bedrock production zones (Madison Limestone) are generally in excess of 700 feet deep and have not been developed to any great degree" is incorrect. As determined from water-well driller's logs and the general geology, the Madison is 350 to 500 feet deep in the central part of the proposed project.

In 1979, at least 25 wells that penetrate the Madison were located during a study being conducted by the U.S. Geological Survey. Because this represents only a part of Madison wells in the area, it is reasonable to say that the Madison is an important aquifer in the area. In the near vicinity of this project, bedrock aquifers are tapped more commonly than the alluvial aquifers. Therefore, despite the good potential of the alluvial aquifers, bedrock aquifers are presently being used more than alluvial aquifers.

3. Fish and Wildlife Resources

Endangered species consultation has taken place and resulted in an opinion of "no jeopardy" on the Bald Eagle for either alternative river crossing. The U.S. Fish and Wildlife Service has no substantive concerns with any of the alternatives and will offer no objection to the Section 10 and Section 404 permits when presented for review if the designs are in accordance with the proposal as presented in this environmental statement.

SUMMARY COMMENTS

We concur that there is no feasible and prudent alternative to the use of lands from the Great Falls Portage National Historic Landmark, but we do not concur in the use of lands from identified park and recreation areas.

Mr. Harold N. Stewart, Helena, Montana

Contingent upon selection of the segment 4 and 5 river crossing location, and inclusion of turnout and interpretive display, this Department would offer no objection to Section 4(f) approval.

Sincerely yours,

James H. Rathlesberger

Special Assistant to
Assistant Secretary of the Interior

Mr. Harold N. Stewart
Division Administrator
Federal Highway Administration
301 South Park, Drawer 10036
Helena, Montana 59601

cc: Mr. Stephen C. Kolod4, P.E.
Chief - Preconstruction Bureau
Montana Department of Highways
Helena, Montana 59601

Response to U.S. Department of the Interior Comments Dated 4-24-80

PRELIMINARY SECTION 4(f) COMMENTS

1. No response required.
2. The preferred alternative, Alternative 5-D, avoids impact to park and recreation properties as noted.

ENVIRONMENTAL STATEMENT COMMENTS

1. Refer to expanded discussion in the section titled "Historical/Cultural Sites". Pertinent correspondence from the State Historical Preservation Officer is also included in Chapter 5, "COMMENTS AND COORDINATION".
2. The "Mineral Resources" section in Chapter 3 has been revised to reflect the current data.
3. No response required.

CHAPTER 6 - LIST OF PREPARERS

CHAPTER 6 - LIST OF PREPARERS

This planning study/EIS was developed using an inter-disciplinary approach to insure the integrated consideration of environmental, social, economic, and technical factors which may be affected by the alternatives. Due to the magnitude of this project consultants were retained to expedite the study.

The prime consultant is HKM Associates - Architects, Engineers, and Planners, located in Billings, Montana. HKM Associates is a full service, multi-disciplinary firm with expertise in such areas as transportation, utilities, structures, soils and geology, hydrology and hydraulics, and environmental planning.

HKM Associates retained the services of several other consulting firms to provide support expertise in various segments of the impact assessment. Brown and Caldwell, a multi-disciplinary consulting firm located in Seattle, Washington, conducted the assessment of resource impacts, personal impacts, social impacts, air quality impacts, and secondary impacts. Towne, Richards & Chaudiere, Inc., an acoustical consulting firm located in Seattle, Washington, performed the noise impact assessment. Historical Research Associates, a consulting firm located in Missoula, Montana, performed the historical site impact analysis and part of the archeological site assessment.

The Montana Department of Highways retained the services of Anthro-Research, Incorporated, located in Livingston, Montana, to perform the preliminary cultural resource reconnaissance survey. Various Department of Highways divisions provided traffic projections and right-of-way, relocation, and utility move estimates.

To insure proper coordination and study development, a project steering committee was formed to review project planning and environmental assessment efforts.

A listing of the principal individuals involved in preparation of this statement and their primary expertise or qualifications follows. The project steering committee members are also listed including the agency they represent.

FEDERAL HIGHWAY ADMINISTRATION

William Dunbar, P.E., Environmental and Design Engineer
Merlin Voegelé, Right-of-Way Officer
H.J. Olilla, P.E., Environmental Engineer

MONTANA DEPARTMENT OF HIGHWAYS

Gordon Larson, Supervisor, Consultant Design Section
James Hahn, Chief, Planning and Research Bureau
Ardis Merry, Right-of-Way Agent
Ed Piprude, Relocations Agent

HKM ASSOCIATES, ARCHITECTS-ENGINEERS-PLANNERS

Al T. Kersich, P.E., Principal-in-Charge of Project
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Ronald E. Billstein, P.E., Director, Water Resources Division
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David Mosser, E.I.T., Utility Engineer
Daniel Nebel, P.E., Project Geologist
James McGill, Geological Engineer
Bill Hofstetter, Geologist
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Tom Eggersperger, Environmental Planner
Jackley Meyers, Computer Applications Coordinator
Kay M. Roam, Technical Writer - Editor

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Emily Davies, Wildlife Specialist
Larry West, Geologist

TOWNE, RICHARDS, CHAUDIERE, INC., ACOUSTICAL ENGINEERS

Roy L. Richards, Vice President in Charge
Michael D. Brack, P.E., Acoustical Engineer

HISTORICAL RESEARCH ASSOCIATES

William Babcock, Project Historian
Gary Williams, Historian
Gary McLean, Archeologist

ANTHRO-RESEARCH, INCORPORATED

Larry Lahrens, PhD, Archeologist

PROJECT STEERING COMMITTEE

Carl Abel, Director of Public Works, Great Falls
William Dunbar, FHWA
L.W. Fasbender, Cascade County Commissioner
Louis Fontana, Cascade County Surveyor's Office
R.W. Freeman, Montana Department of Highways
Gordon Larson, Montana Department of Highways
John Mooney, Director, Great Falls City-County Planning Board
Ben Rangel, Transportation Planner, Great Falls City-County
Planning Board
Merlin Voegele, FHWA

APPENDICES

APPENDIX A - BIBLIOGRAPHY OF PLANNING
STUDY AND IMPACT ASSESS-
MENT REPORTS

APPENDIX B - INDEX

APPENDIX A

Bibliography of Planning Study/EIS Reports

Brown and Caldwell, November 1979, Great Falls, Montana, Proposed South Arterial M5212 (1), Environmental Impact Analyses - Resources Impacts, Personal Impacts, Social Impacts, Air Quality Impacts, Secondary Impacts, Seattle, Washington

Historical Research Associates, August 1979, Historic Resources Project, Great Falls South Arterial M5212 (1), Missoula, Montana

Historical Research Associates, October 1979, Cultural Resource Survey, Great Falls South Arterial Project, Montana Department of Highways Project M5212 (1), Missoula, Montana

HKM Associates, February 1979, Great Falls South Arterial M5212 (1), Technical Report on Task 1, Summary of Existing Engineering Data, Billings, Montana

HKM Associates, March 1979, Great Falls South Arterial M5212 (1), Technical Report on Task 2, Summary of Existing Environmental and Socio-Economic Data, Billings, Montana

HKM Associates, April 1979, Great Falls South Arterial M5212 (1), Technical Report on Task 3, Selection of Design Parameters and Alternate Routes, Billings, Montana

HKM Associates, August 1979, Great Falls South Arterial M5212 (1), Technical Report on Task 4, Preliminary Design of Alternate Routes, Billings, Montana

HKM Associates, September 1979, Great Falls South Arterial M5212 (1), Technical Report on Task 5, Access Analysis, Billings, Montana

HKM Associates, October 1979, Great Falls South Arterial M5212 (1), Technical Report on Task 6, Surface Drainage Study, Billings, Montana

HKM Associates, October 1979, Great Falls South Arterial M5212 (1), Technical Report on Task 7, Conflicting Areas Between the Great Falls South Arterial and Public Service Utilities, Billings, Montana

HKM Associates, January 1980, Great Falls South Arterial M5212 (1), Technical Report on Task 8, Stage Construction Report, Billings, Montana

HKM Associates, January 1980, Great Falls South Arterial M5212 (1), Report on Task 13, Public Involvement, Billings, Montana.

Montana Department of Highways, November 1979, Project M5212 (1), Designation: Great Falls South Arterial, Stage 1, Conceptual Stage (Relocation Estimate), Great Falls, Montana

Montana Department of Highways, November 1979, Right-of-Way Estimate,
Project No.: M5212 (1), Designation: Great Falls South Arterial, Great
Falls, Montana

Towne, Richards & Chaudiere, Inc., December 1979, Supplemental Report,
Noise Impact Analysis, Great Falls South Arterial, Seattle, Washington

The above bibliography lists the detailed technical reports and
environmental impact analysis reports prepared in conjunction with the EIS/
planning study. Final Draft Environmental Impact Statement summarizes the
information and findings presented in these reports. Copies of these
reports and the May 1, 1980 public hearing transcript are on file for
public review at the following locations:

U.S. Department of Transportation
Federal Highway Administration
Federal Office Building
301 South Park Street
Helena, Montana

Montana Department of Highways
Preconstruction Bureau
2701 Prospect
Helena, Montana

Montana Department of Highways
Division Office
104 18th Avenue NE
Great Falls, Montana

Great Falls City-County Planning Board
Civic Center
Great Falls, Montana

HKM Associates
Airport Industrial Park
Billings, Montana



